

# **D E C L A R A T I O N**

**MIZORAM UNIVERSITY  
JULY 2018**

I, *Rohlupuii Pachuau*, hereby declare that the subject matter of the thesis entitled “*Library and Information Services of National Institute of Technology in North East Region*” is the record of the work done by *me*, that the content of this thesis did not form the basis of the award of any previous degree to me or to do the best of my knowledge to anybody else, and the thesis has not been submitted by me for any research degree in any other University/Institute.

This is being submitted to the Mizoram University for the Degree of *Doctor of Philosophy* in *Library and Information Science*.

Aizawl, Mizoram  
Date: 10<sup>th</sup> July 2018

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## CERTIFICATE

This is to certify that the thesis entitled "*Library and Information Services of National Institute of Technology in North East Region*" submitted by Ms. *Rohlupuii Pachuau* for the award of *Doctor of Philosophy in Library and Information Science* is carried out under my guidance and incorporates the students' bona-fide research and this has not been submitted for award of any degree in this or any other university or institute of learning.

Date: 10<sup>th</sup> July 2018

Place: Aizawl, Mizoram

*(Dr R.N. Mishra)*

Professor & Supervisor

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(*ROHLUPUII PACHUAU*)

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## ABBREVIATIONS

ACI MCP	-American Concrete Institute Microsoft Professional
ACM	-Association for computing Machinery
AICTE	- Indian Council for Technical Education
AIEEE	- All India Engineering Entrance Examination
AIP	- Adaptive Internet Protocol
ASCE	- American Society of civil Engineers
ASME	-American Society of Mechanical Engineering
ASTM	- American Society of Testing and Materials
AV	- Audio Visual
BESU	- Bengal Engineering and Science University
BHEL	-Bharat Heavy Electricals Limited
BIS	- Bureau of Indian Standard
BoG	- Board of Governors
CAS	- Current Awareness Service
CCMT	- Centralised Counselling for MTech/March/MPlan
CD	- Compact Disc
CD-ROM	- Compact Disc- Read Only Memory
CE	- Civil Engineering
CES	- Consulting Engineering Services
CMD	- Chairman and Managing Director
CSAB	- Centralised Seat Allocation Board
CUO	- Central University of Orissa
CUP	- Cambridge University Press
DASA	- Direct Admission of Student Abroad
DELNET	- Developing Library Network
DVD	- Digital Video Disc
E&A	- Exam and Academics
E-CAS	- Electronic Current Awareness Service
ECE	- Electrical and Computer Engineering
EDI	- Electronic Dissemination of Information
EDUSAT	- Education Satellite
EEE	- Electrical and Electronic Engineering
ETD	- Electronic Theses and Dissertation
F&A	- Finance and Accounts
FA	- Financial Advisor
GoI	- Government of India
HOD	- Head of Department
HRDC	- High Powered Reviewed Committee
HRDD	- Human Resource Development Department
HSS	- Humanities and Social Science
HSS	- Humanities and Social Science
ICT	- Information Communication Technology

IEEE	- Institute of Electrical and Electronic Engineering
IEL	- Electronic Library
IFCPAR	- Indo French Centre for the Promotion of Advanced Research
IGNOU	- Indira Gandhi National Open University
IEST	- Indian Institute of Engineering Science and Technology
IIM	- Indian Institute of Management
IISc	- Indian Institute of Science
IIT	- Indian Institute of Technology
INDEST	- Indian National Digital Library in Engineering Science and Technology
IRC	- Indian Roads Congress
IRP&E	- Institute of Radio Physics and Electronics
ISID	- Institute for Studies in Industrial Development
ISRO	- Indian Space Research Organisation
JCCC	- Journal Custom Content for Consortia
JEE	- Joint Entrance Examination
KIC	- Knowledge Information Centre
LAN	- Local Area Network
LIBSYS	- Library System
MBA	- Master of Business Administration
MCA	- Master of Computer Application
MD& CEO	- Managing Director and Chief Executive Officer
ME	- Mechanical Engineering
MHRD	- Ministry of Human Resource Development
MIS	- Management Information System
MR	- Muster Roll
MSME	- Master of Science in Mechanical Engineering
NBT	- National Book Trust
NDL	- National Digital Library
NERL	- North Eastern Regional Libraries
NIT	- National Institute of Technology
NITA	- National Institute of Technology Agartala
NITAP	- National Institute of Technology Arunachal Pradesh
NITW	- National Institute of Technology Warangal
NKN	- National Knowledge Network
NPTEL	- National Programme on Technology Enhanced Learning
NSS	- National Service Scheme
OPAC	- Online Public Access Catalogue
P&D	- Planning and Development
PWD	- Public Work Department
R&D	- Research and Development
REC	- Regional Engineering College
RFID	- Radio Frequency Identification
S&T	- Science and Technology
SA	- Students Affairs

SC	- Scheduled Caste
SDI	- Selective Dissemination of Information
SOUL	- Software for University Library
ST	- Scheduled Tribe
SVNIT	- SardarVallabhat National Institute of Technology
SWAYAM	- Study Web of Active Learning for Youth Aspiring Minds
TE	- Teachers Education
TEQIP	- Technical Education Quality Improvement Programme
URL	- Uniform Resource Locator
VC	- Vice Chancellor
VNIT	- Visvesvaraya National Institute of Technology
WiMAX	- Worldwide Interoperability for Microwave Access Inc.

## 1.1 Introduction

Library services from the days of yore have been well recognized in every quarter of higher education and it got accelerated in the wake of induction of various technologies. Rather, it revolutionized the entire gamut of library services. Hence, Information and Communication Technology (ICT) not only revamped the library scenario both in national and global sphere but also opened new vistas in creating, producing and delivery of information through multiple technology support devices. This has become imperative in view of the information requirements of the users for their learning, research, and development. Thus, the information revolution is considered to be the central phenomenon in the present society. In essence, every bit of information available today is systematically codified, customized and modified using computer technology which can be envisaged in the emergence of technical education. The technical education has brought about the massive production and acceleration of information.

India has the largest higher education system in the world considering the number of institutions. The technical education got the requisite impetus following the establishment of Regional Engineering Colleges, now elevated to the status of Deemed Universities and have been rechristened National Institute of Technology to provide technical leadership, which aims to (i) impart teaching and research in different branches of engineering,(ii) maintain high standard in education and training, (iii) promote co-operation with industry and other technical institution serving as an effective link between Indian Institute of Technology and State Engineering Colleges etc. The National Institute of Technologies is a group of public engineering institutes in India. On their inception decades ago, all National Institute of Technology's were referred as Regional Engineering Colleges (REC's) and were governed by their respective State Government.

National Institute of Technology was formed to promote regional diversity and multi-cultural understanding in India. Comprising thirty autonomous institutes, they are located in each of the state/territories of India. The success of technology-based industry led to high demand for technical and scientific education. While tracing a brief history of NITs in India, MHRD in 2002 took a policy decision to upgrade RECs to NITs and as such in 2003, all RECs became NITs. With the technical based industry's continuing growth, the Government decided to upgrade twenty NITs to full-fledged technical universities. The Indian Parliament passed enabling legislation, the NIT Act in 2007 and which took effect on 15<sup>th</sup> August of that

year. The target is to fulfil the need for quality manpower in the field of engineering, science, and technology and to provide consistent governance, fee structure, and rules across the NIT. The law designates each NIT as Institute of National Importance.

Source: [http://mhrd.gov.in/sites/upload\\_files/mhrd/files/upload\\_document/NITact2007.pdf](http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/NITact2007.pdf) (Accessed 4th March 2016).

## **1.2 National Institute of Technology in India**

The National Institute of Technology (NITs), a group of the public engineering college of India was referred to as Regional Engineering Colleges (RECs) which were governed by the respective State Government and Central Government. However, non-recurring expenditures and expenditures for post-graduate courses of REC were borne by the Central Government, while recurring expenditures on undergraduate courses were shared equally by Central and State Governments. At present, there are thirty one (31) NITs with autonomous status and are located in one each major city in their respective state. NITs were founded to promote regional diversity and multi-cultural understanding in India and in 2007, the Indian Government declared the institutes as Institute of National Importance. NIT offers degree courses in Bachelors', Masters' and Doctorate levels in various branches of engineering and technology. Since all NITs are autonomous, they have the authority to set up their own course curriculum. However, admission to the NITs is done by the erstwhile All India Engineering Entrance Examination which is now replaced by Joint Entrance Examination Main (JEE Main) which is conducted across the country in various centers. Due to the enormous cost and infrastructure involved in creating globally respected Indian Institute of Technology (IITs), in 2002, Ministry of Human Resource Development (MHRD) upgraded all Regional Engineering Colleges (RECs) to National Institute of Technology (NIT) instead of creating more IITs. However, the Central Government controls all NITs and provides funding.

The up-gradation of Regional Engineering Colleges were designed along with the lines of the prestigious Indian Institute of Technology (IITs) after it was concluded that RECs had potential values in various ways as proven by the success of their alumni and their contributions to the field of technical education. Subsequently, funding and autonomy for NITs increased for overall development and these changes calls for implementation of High Powered Reviewed Committee (HPRC) chaired by Dr. R.A. Mashelkar who in 1998 submitted a report entitled 'Strategic Road Map for Academic Excellence of Future RECs'

Consequent upon the up-gradation of RECs to NITs in 2002, Ministry of Human Resource Development (MHRD) further issued NIT status to three more colleges, located at (i) Patna, previously known as ‘Bihar Engineering College’ which is more than 100 years old, (ii) Raipur previously known as ‘Government Engineering College’ and (iii) Agartala previously known as ‘Tripura Engineering College’. *Source: PIB press release dated 23<sup>rd</sup> Feb 2006 <http://pib.nic.in/new site/pmreleases.aspx?mincode=61>*. Based on the request of State Government and feasibility, future NITs were either converted from existing institutes or newly created. The 21<sup>st</sup> and the first brand new NIT was planned for Manipur, Imphal in North Eastern state at an initial cost of Rs 500 crores. ([https://en.wikipedia.org/wiki/National\\_Institutes\\_of\\_Technology](https://en.wikipedia.org/wiki/National_Institutes_of_Technology)).

In 2010 the Central Government announced setting up ten new NITs in the remaining states and territory thereby, leading every state in India to have its own NIT. A list of NITs in India showing its establishment, place, and URL has been depicted in Table-1 for clear understanding.

Table: 1: List of NIT’s in India (According to year of establishment)

SL No.	Name	Year of Establishment	Place	URL
1	NIT Patna	1886	Bihar	<a href="http://nitp.ac.in">nitp.ac.in</a>
2	NIT Raipur	1956	Chhattisgarh	<a href="http://nitrr.ac.in">nitrr.ac.in</a>
3	NIT Surathkal	1958	Karnataka	<a href="http://nitk.ac.in">nitk.ac.in</a>
4	NIT Warangal	1958	Telangana	<a href="http://nitw.ac.in">nitw.ac.in</a>
5	NIT Durgapur	1960	West Bengal	<a href="http://nitdgp.ac.in">nitdgp.ac.in</a>
6	NIT Jamshedpur	1960	Jharkhand	<a href="http://nitjsr.ac.in">nitjsr.ac.in</a>
7	Vivesvaraya NIT	1960	Maharashtra	<a href="http://vnit.ac.in">vnit.ac.in</a>
8	NIT Srinagar	1960	Jammu & Kashmir	<a href="http://nitsri.net">nitsri.net</a>
9	NIT Calicut	1961	Kerala	<a href="http://nitc.ac.in">nitc.ac.in</a>
10	NIT Rourkela	1961	Odisha	<a href="http://nitrkl.ac.in">nitrkl.ac.in</a>
11	Sardar Vallabhbhai NIT	1961	Gujarat	<a href="http://svnit.ac.in">svnit.ac.in</a>
12	Malviya NIT Jaipur	1963	Rajasthan	<a href="http://mnit.ac.in">mnit.ac.in</a>
13	Motilal Nehru NIT	1963	Uttar Pradesh	<a href="http://mnnit.ac.in">mnnit.ac.in</a>
14	NIT Kurukshetra	1963	Haryana	<a href="http://nitkk.ac.in">nitkk.ac.in</a>

15	NIT Tiruchirapalli	1964	Tamil Nadu	nitt.edu
16	NIT Agartala	1965	Tripura	nita.ac.in
17	NIT Silchar	1967	Assam	nits.ac.in
18	NIT Bhopal	1986	Madhya Pradesh	manit.ac.in
19	NIT Hamirpur	1986	Himachal Pradesh	nith.ac.in
20	DrB.R.Ambedkar NIT	1987	Punjab	nitj.ac.in
21	NIT Delhi	2010	New Delhi	nitdelhi.ac.in
22	NIT Goa	2010	Goa	nitgoa.ac.in
23	NIT Ponducherry	2010	Pondicherry	nitpy.ac.in
24	NIT Manipur	2010	Manipur	nitmanupur.ac.in
25	NIT Meghalaya	2010	Meghalaya	nitm.ac.in
26	NIT Mizoram	2010	Mizoram	nitmz.ac.in
27	NIT Nagaland	2010	Nagaland	nitnagaland.ac.in
28	NIT Sikkim	2010	Sikkim	nitsikkim.ac.in
29	NIT Uttarakhand	2010	Uttarakhand	nituk.com/
30	NIT Arunachal Pradesh	2010	Arunachal Pradesh	nitap.ac.in
31	NIT Andhra Pradesh	2015	Andhra Pradesh	www.nitandhra.ac.in

Source: Department of Higher Education. <http://mhrd.gov.in/nit> (Accessed on 13.4.2014)

To be specific, the NITs establishment in North-East India, a list has been shown below in Table- 2 according to its year of establishment, place of location and URL.

Table: 2: List of NIT's in North-East, India (According to year of establishment)

SL No.	Name	Year of Establishment	Place	URL
1	NIT Agartala	1965	Assam	nits.ac.in
2	NIT Silchar	1967	Tripura	nita.ac.in
3	NIT Manipur	2010	Manipur	nitmanupur.ac.in
4	NIT Meghalaya	2010	Meghalaya	nitm.ac.in
5	NIT Mizoram	2010	Mizoram	nitmz.ac.in
6	NIT Nagaland	2010	Nagaland	nitnagaland.ac.in
7	NIT Sikkim	2010	Sikkim	nitsikkim.ac.in
8	NIT Arunachal Pradesh	2010	Arunachal Pradesh	nitap.ac.in

Source: Department of Higher Education. <http://mhrd.gov.in/nit> (Accessed on 13.4.2014)



While, discussing the NITs in India placed in Table 1 above, out of thirty one (31) NITs, North-East possesses eight (8) NITs (Table-2) to cater to the needs of the thousands of students both from the North East and outside in the field of technical education. Mention may be made that, NIT, Agartala is one of the oldest NITs established in the North East in the year 1965 while others were subsequently followed.

### **1.3 Central Library of NITs- A Glance**

All NITs are supported with a Central Library equipped with technical books, literature, fiction, scientific journals, and other electronic materials. Most have digitized their libraries. Some provide an intranet library facility. Every departmental library has high-speed connectivity. Electronic libraries allow students access to online journals and other periodicals through the AICTE-INDEST consortium, an initiative by the Ministry of Human Resource Development. Students also have access to IEEE documents and journals.

All the eight (8) NIT's in the North East Region are still very young. However, NIT Silchar, being the esteemed institution among all the NIT's in North East was established in the year 1967 and its Central Library was established in 1977, which is now one of the most important libraries regarding technical education within the region. Having a collection of 96,683 it is well equipped with campus network and OPAC facility is available and is also a member of DELNET, Delhi and INDEST Consortium for online journals etc. The NIT Agartala is also a very technology-oriented institute where the library is equipped with Digital Library which is available from 8:00AM to 8:00PM. It has a collection of more than 84350 books and more than 14000 e-journals. All e-journals are available in the digital library and also each hostel in the campus has a separate library. Other than this two NIT's all other NIT in the North East was established in 2010.

### **1.4 Significance and Scope of the Study**

NITs contribute immensely in the field of technical education, skill-oriented technocrats which led to the sustainable development of the nation as a whole. It adds potential value in making economic generation for the growth and development of a society. It further contributes enormously in a versatile way to keep the image of a nation in the global sphere. Therefore, to improve the economic development of the country particularly the North East Region and to develop through the pursuit of excellence in technical education, these technical institutes were set up by the Govt. of India. In addition to these, the

institutes help in generating skill oriented professionals for the healthy growth of the society. To achieve this mission of the NITs in North East, the library which is the resource center attached with each institute provides substantial information both in print and electronic to the Students, Research Scholars, and Faculties. The significance of the study lies with the fact that, in India the high-grade NITs like NIT Warangal, Kurukshetra, and Surathkal etc. provide immense contributions in library and information services to cater to the needs of the technocrats. Therefore, the library and information services in the young NIT's in North East also require adopting the same parameter to enrich higher academic excellence to the engineers. The library and information service further adds potential value in research among the engineers and function as pacesetters and to provide academic leadership in the global sphere.

Thus, being promoted by the activities of the libraries of national importance institutions as discussed, the scholar felt it necessary to study the different library and information services so as to implement a better and outstanding services in the young NITs in North East to make it a national importance institute especially in library and information services at par with other NITs. At present, most of the NIT's in the northeast have inadequate library services as they are still very young and recently established. However, the scholar shall study a few major NIT's in India at Warangal, Kurukshetra, and Surathkal which would be a role model for the NITs of North East Region. The present study is restricted to all 8 NIT libraries within the North East Region. The scholar has suggested a role model to follow in the central library of North-East Region taking into account the services and other factors of libraries which are being followed by the central library of NIT at Warangal, Kurukshetra, and Surathkal.

## **1.5 Review of Literature**

The scholar made an extensive survey of literature available in the present area of investigation as the review of the literature provides the background knowledge or works that have been carried out in the concerned area of the study. A literature review is of prime importance for any type of social research. Literature search in fact enables a scholar to know the quantum of literature unfolded in a particular subject, and the extent to which the work in the same and allied fields have already been carried out.

Bankapur and Mansur. (2012). The paper highlights that the engineering institutes is the lifeblood of national development and that this institute must have libraries well equipped with the latest technology. The libraries have responsibilities in rendering and enhancing information support to the users. The effort of using technology in managing collection and sharing resources through consortia are the need of the hour. The efforts of engineering libraries in developing and nurturing good collection in a viable and economical manner are the challenging task for the librarians.

Bala and Santosh Kumari (2013) analysed the research performance of National Institutes of Technology (NITs) of India during 2001-2010 on several parameters including NIT's on their overall contributions, their growth pattern, citation impact, sharing of international collaborations, identification of significant participating countries in NIT's international collaborations, contributions and impact of prolific authors, pattern of communication of NIT's output in most productive journals and characteristics of high cited papers of NIT's in the paper on 'Research Performance of National Institutes of Technology (NITS) of India during 2001-2010: A Bibliometric Analysis'. The paper was analysed data from Scopus Citation Database for 10 years (2001-2010).

The authors Gaur and Jeevan (2014) in their paper on 'Engineering College Libraries of Jaipur results of a Questionnaire Study' highlighted the results of a questionnaire surveyed among the librarians and selected users in some of the engineering college libraries in Jaipur, Rajasthan. The survey addressed five broad areas like the library services, collections, information access, library staff and general information. The questionnaires for the librarians while covered aspects such as collection of the library, services, building, staff etc. the questionnaire for the users contained objective type questions to assess the user's satisfaction with the various services offered by the libraries. Some information other than the questions also was collected through interview method. The data collected were presented with the help of tables and discussions. The results generated by the study enlightened on the present status of libraries of engineering colleges in the state of Rajasthan.

Jange and Sami (2006) in their paper on 'Influence of Internet on Library and Information Centres of National Institute of Technology in India' pointed out that, the internet is the gateways to a world of seemingly inexhaustible information resources and a valuable information tool to the Library and Information Centres that supplement existing

library resources. The paper attempted to understand and evaluate the use of the internet as an information source by libraries of National Institute of Technologies in India and aimed to determine the utilization of Internet activities and services, search methods employed, problems encountered and associated factors. The paper studied the purpose of use of the internet by libraries and the perception of internet by the library professionals. The authors also explored the use of internet services and its impact on library activities and services including the search strategies adopted for searching information by libraries and the level of satisfaction towards internet with the features of internet as an information tool.

Kannappanavar and Manjunatha, K.V. (2011). This paper highlights the issues concerning library resources and services in engineering college libraries in Karnataka. The study found out that the majority of the engineering colleges are managed by the private institutions where nearly all of them are understaffed. Very few of the college libraries are functioning in independent buildings and most of them have good collections of books while journals collections vary. The paper also highlights the plans to be introduced for new services in the library in par with the feedback of the librarians.

Kaushal, Singh and Singh (2017) in their study analyze the influence of ICT in NIT libraries. The study is conducted to analyze the working pattern and its impact and effectiveness of library resources and services of NITs. The study aims to give analytical view of the application of ICT and its effectiveness towards resources and services. The study is contemplated to review the entire situation of the libraries of NIT in India and to provide useful suggestions for their improvement. The present study clarifies that NIT libraries are providing satisfactory services to its users keeping in view the exponential growth in the technology based services. The advancement of LIS professionals in ICT literacy is an important factor with continuous user education system. Strong network connectivity is also an essential issue for quality services which will in turn produce more highly skilled personnel for the betterment of the country.

Kumar (2015) in his paper on 'Information and Communication Technology Facilities and Services among Engineering College Libraries in Rayalaseema Region of Andhra Pradesh' studied the various ICT facilities and services provided by the Engineering College Libraries in Rayalaseema region in Andhra Pradesh. The study focused on the current status of institutions providing services such as traditional, electronic and document delivery

services and their facilities like hardware, software and communication resources. Analysis of Variance (ANOVA) test was conducted to find out the significance of the variables constituting hardware, software facilities and communication services versus institutions, respectively. The study showed that more than 80% libraries are provided with Windows XP and more than 70% Pentium IV workstation. DELNET seems to be the most preferred information network service and VSAT is found to be the mostly used communication service. About 60% libraries are partially automated and barcode techniques are most frequently opted for circulation services. The study concludes that the automation of libraries in Rayalaseema region is still in progress.

Newmon, Meera, and Vandana (2013). The article paper attempts to examine creating library awareness among the students of engineering colleges. It brings out the need and method in terms of library facilities, resources, and services etc. The paper also highlights the result of the survey and major findings with few suggestions to be considered. The study gives the status view of the engineering college libraries and the opinion of the librarians and library staffs and the users about the performance they use.

Pal (2015) in his paper discusses on consortium as an organization, and is one of the emerging toolkits for libraries to survive; demonstrates the characteristics of successful consortia; recognizes the constraints specific to the north-east region, and suggests the information of a consortium solely for North Eastern Regional Libraries (NERL) in India. The study also draws an attention to the environmental circumstances that are unique to the north-eastern part of India which makes NERL potentially different from the mainland, thus hampers the consistent growth of consortia in the region. The paper examines various supportive measures to initiate the Consortium and uses a model approach to be known as PLACON (stands for PLANNER Consortia).

Patel and Singh (2015). This paper deals with the use of resources and services based on information and communication technology in the Engineering College libraries of Chhattisgarh. The paper examines the utilization and satisfaction levels of users with respect to the resources and services based on information and communication technology in these engineering colleges. The study is based on a questionnaire survey and further investigates areas including library professional's help in the use of information and communication

technology-based resources and services. Some measures have also been suggested for the improvement of existing ICT based resources and services.

The paper authored by Panigrahi (2010) on 'Library and Information Science Education in East and North East India: Retrospect and Prospects' dealt with the Library and Information Science education in East and North East India. The paper identified that undergraduates were started in many colleges but are not properly maintained at some colleges. This paper discusses the need of library and information centres due to information explosion and its role in the information society. The paper also revealed that the need for well-trained manpower with systematic and technical education for handling the situation effectively and efficiently. The author viewed that the training of library professionals is very important for the library services so as to manage the needs of the users.

Rao and Choudhury (2010) in their paper on 'Computer Infrastructure Facilities and Services at National Institutes of Technology Libraries in India' highlighted the availability of computer infrastructure in National Institutes of Technology across the country. The authors discussed the importance of computer infrastructure and its impact on the technical education which act as the primary function of providing resources and serve the users through library services. The paper also discussed the need of adequate infrastructure facilities support for academic libraries to share their resources and services in an effective way. They pointed out that National Institutes of Technologies are the prime institutions and benchmark for technical education in India in the field of engineering, science and technology. The paper apart from discussing the computer facilities available at the National Institutes of Technologies across India and current status of computer-based library services offered by these institutions also identified the current status and evaluated their performance with respect to computer infrastructure facilities.

Rajendra Kumar (2013) on the topic 'Students and the Internet: A study of Internet use by the students of NIT Kurukshetra, Haryana' focused on the use pattern of internet by students of NIT Kurukshetra and investigated the purpose of use, internet resources and services used, training, places of use, use of satisfaction level towards internet and the problem faced while using the internet. The author viewed that the use of the internet is a source for collecting various data and information for their studies among the students and it has greatly affected the everyday dissemination of information explosion. Some of the major

internet resources were collected from electronic journals. The paper revealed the problems faced and the satisfaction from the use of the internet for their information and studies.

Rao (2013) in his paper on 'Higher Technical Education in India: Prospects, challenges and the way forward' discussed the situation of the technical education system, the regional imbalance with the impact on the regional economy and the importance of human capital. His discussion revealed the different degree-awarding universities and institutes and the quality fraction among universities, colleges, and technical education. The author also discussed that qualified manpower in specialized fields is an important fact. Further, the paper apart from highlighting the overall situation of higher and technical education in India also emphasized on the growth and the challenges including prospects of the educational system through libraries.

Rao, Srinivas (2015) in his article evaluates the performance of NITs in India, based on the resources and facilities available and the rank of the NIT individually. The study is confined only to twenty (20) NIT libraries in India concerning their facilities based on a given specific numerical scales for assessment. The study highlights the performance based on zone wise among the selected libraries. The availability and the development in computer infrastructure in the libraries are the main criteria along with the network services provided to the users. The study signifies the contribution towards the development of the institute with the provision of multiple facilities for sustainable teaching and learning environment. The study suggests the need for resource based technical hub for access, share, serve and support to the academic community.

Roy, Datta, and Kumar (2016) on their paper focus on the study of identifying and evaluating the resources and services provided in NIT Agartala library especially for researchers work. It also explores the importance of such resources and services, user awareness and their utilization in research work and how the Information Technology, Internet, etc. influences and contributes to the information-seeking process in modern research; especially in the field of science and technology. The study also examines what kinds of resources are mostly used by the researchers in science and technology fields. The findings of the study reveal the problem areas of the institutional library and also reveal the progress in research work in such institutions.

Satpathy (2012) in his paper on ‘Best Practices in Library and Information Centres: A Case Study of NIT Silchar’ mentioned about the best practices for the libraries and information centers in the technical institute. The author focused on the use of Information Communication Technology (ICT) with creative/innovations ideas which lead to evolving best practices in library and information environment and can be replicated in Library and Information Centres. The paper elaborated the best practices of library services with the application of technological aspects which could enhance the academic information environment. The paper also stated that in order to provide world-class services to the users, the library requires adopting the processes and practices that are not only considered to be the best but are comparable with the best in the market.

Singh (2013) in his paper on ‘Information Seeking Behaviour of Users of Dr. B. R. Ambedkar NIT Central Library’ highlighted the use of collections and services at Dr. B.R. Ambedkar National Institute of Technology Central Library and studied on information seeking behaviour of the users. The paper demonstrated and elaborated various aspects of the use of collections and services, the purpose to visit the library by the users, adequacy of the library hours, infrastructure facilities and use of internet technology. The paper also identified the levels of various services provided, access of online database services, database search techniques and user awareness about different types of the library network including the satisfaction on the overall functioning of the library.

Singh and Samyal (2014) in their paper on ‘IIT Libraries: Evaluation of Web-based Information Resources and Services’ discussed the recent experiences of tremendous transformation of available library resources and services and how the internet has revolutionized the way to access and retrieve web-based information. The authors viewed that IITs are the premier institutions of the country and their libraries are redesigned to have the online availability of quality information resources and services such as e-journals, e-prints, databases, library catalogs (OPAC, web-OPAC), education materials, information on organizations, associations and so on. They further viewed that web technologies offered a viable platform to these institutions to make available all informational resources to their patrons through websites or web pages. The paper evaluated the libraries of IITs with regard to their web-based information resources, services, websites/OPACs. The authors suggested measures required for better representation of web-based information resources and services to their clientele.



Tyagi (2012). The author carried out the study to know the awareness regarding Web 2.0 tools such as blogs, Wikipedia, RSS feeds social networks and other. The study observed that a significant portion of the respondents have good knowledge about Web 2.0 and what it provides for innovative and interesting resources made available to the librarians to serve their users as quickly and effectively as possible with trending technologies. He also suggests a comprehensive study on the national level about the use of Web 2.0 technology.

Verma and Shukla, (2016) on their paper highlight the recent changes in ICT which have opened new ways of information creation, organization, storage, and dissemination of scholarly communication. The institutional repositories act as a central digital archive to make research and intellectual outcomes of the institutions available online to the needy ones. The paper discusses the concept, need, pros and cons related to institutional repositories. Besides this, the paper also discusses the survey results based on its framed objectives and concluded that DSpace and E-Prints are most prevalent software for the purpose.

## **1.6 Research Design**

The research design refers to the overall strategy to integrate the different components of the study in a coherent and logical way leading thereby ensuring effective address of the research problem. It also constitutes the blueprint for the collection, measurement, and analysis of data. The research design is a detailed outline for carrying out the investigation. It also typically includes the process of data collection, a scientific organization for analysis. The length and complexity of describing a research design vary considerably depending upon the type of research.

### **1.6.1 Statement of the Problem**

Technical education in the field of Engineering, Science and Technology has become imperative in the society for its economic and sustainable growth of a nation. The National Institute of Technology's across the country play an indispensable role and support to achieve the mission. To meet these challenges, the libraries of these technical institutes also contribute immensely in providing the useful and authentic information for sustainable research and development. The immense growth in library services through the network is equally enhancing the academic excellence in terms of teaching, learning, and research. Libraries, in the present days, are technology driven and are in continuous demand in the

academic environment where a student, research scholars as well as the faculty members prefer to use and access computer-based information services and demand timely information. This revolutionary change led to the transformation of a man assisting to the self-assisting system within the libraries. The technical education within the country plays an important part in promoting the library services enhancing the technological aspects since they are now given the status of National Institute of Importance (NII). As the NIT's in the North East Region are young, they are not at par with the other NITs in India and hence, require developing strategies in collection development, content managements etc. to facilitate the users with outstanding services. Even if, efforts are being made by the libraries to develop their collections, subscription to various national and international databases, the educators and learners are deprived of using due to strategic location problems, lack of adequate infrastructures etc. Looking the national scenario and North East with regard to Library and Information Service, the scholar felt it necessary to study and give suggestions for designing a role model for the NIT libraries in North East Region out of the study of few major NIT's in India which include NIT of Warangal, Kurukshetra, and Surathkal.

### **1.6.2 Objectives of the study**

The objectives of the present study are to:

- (i) Provide an overview of the Library and Information Services scenario in NITs of India.
- (ii) Make an assessment of the present library and information services provided by NITs of North East Region.
- (iii) Identify the challenges faced by the librarians of NIT in North-East Region.
- (iv) Ascertain the best practices adopted by other NITs in North East Region and
- (v) Draw a model plan for National Institute of Technology Libraries in North East Region on the basis of the best practices followed by the library of NIT Warangal, Kurukshetra, and Surathkal.

### **1.6.3 Research Methodology**

The scholar adopted different methodologies for collection of relevant data. Both questionnaire method and case study were applied to solicit opinion from all the eight (8) potential NIT libraries in North East Region with regard to library and information services provided by them. The population size is restricted to the all the eight (8) librarians of NITs in North East and thirty (30) users each consisting of faculties and students each of all eight

(8) NITs in North East Region covered under study thus, coming to a total population 248 i.e., 240 users and eight (8) librarians. The scholar also made a study of the major National Institute of Technology Libraries such as NIT Warangal, NIT Kurukshetra and NIT Surathkal as they are among the top 10 in India according to 2016 NIT ranking. (<https://missionnaukri.co.in/list-nit-engineering-colleges-india/>). The libraries are also well equipped and providing outstanding services to their patrons and hence, the scholar proposed these libraries as model libraries for implementation of the same in all eight (8) NITs of North East Region. The study focuses an outcome of the proposed model plan for the all eight (8) NIT libraries in North Eastern Region (NER).

#### **1.6.3.1 Questionnaire Method:**

The scholar designed a structured questionnaire and distributed to the librarians of eight (8) NITs in NER to make an assessment of the National Institute of Technology with regard to the services provided by them. Further, the scholar distributed thirty (30) questionnaires consisting of faculties, research scholars and the students in all 8 NITs in NE Region to extract the opinion about the library services. The analysis and interpretation were drawn based on the feedback received from the Librarians and the users of the National Institute of Technology in the North East Region. MS-Excel was used to draw statistical inferences for the present study.

#### **1.6.3.2 Observation Method:**

Observation method which is a systematic data collection approach was also employed by the researchers to examine people in natural settings or naturally occurring situation. The scholar also applied observation method in each NIT library in North East covered understudy to get abreast with the lively situation prevailing in the libraries which helped the scholar to draw the inference.

#### **1.6.3.3 Case Study Method:**

To obtain in-depth information about a particular entity, and best practices prevailed in each three NIT library Surathkal, Warangal and Kurukshetra case study were applied so as to apply the service mechanism in the NIT library in North East Region.

#### **1.6.4 Chapterisation**

The present thesis comprises a total number of six (6) chapters. Chapter-I of the thesis comprises introduction, National Institute of Technology in India, Central Library of National Institute of Technology: A Glance, Significance and Scope of the Study, Review of Literature, Research Design, and Statement of the Problem, Objective of the Study, Research Methodology, Questionnaire Method, Observation Method, Case Study Method, Chapterization, Conclusion and Reference. Chapter-2 of the study focuses on the organizational structure of National Institute of Technology where it has been started with Introduction, National Institute of Technology in Indian Scenario: A Glimpse, National Institute of Technology Arunachal Pradesh, National Institute of Technology Agartala, National Institute of Technology Manipur, National Institute of Technology Silchar, National Institute of Technology Meghalaya, National Institute of Technology Mizoram, National Institute of Technology Nagaland, National Institute of Technology Sikkim, Conclusion and References.

Chapter-3 of the thesis comprises of Library and Information Services in National Institute of Technology (NIT) in North East starting with Introduction, Library and Information Services in National Institute of Technology in India: A Glance, Circulation Services, Reference Services, Document Delivery Services, Internet Services, Institutional Repository, OPAC and Web OPAC, Periodical Services, Reprography Services, Book Bank, Awareness and Training, Central Library of National Institute of Technology Agartala, Central Library of National Institute of Technology Mizoram, Central Library of National Institute of Technology Nagaland, Central Library of National Institute of Technology Meghalaya, Central Library of National Institute of Technology Arunachal Pradesh, Central Library of National Institute of Technology Sikkim, Central Library of National Institute of Technology Silchar, Central Library of National Institute of Technology Manipur, Overall view of Library Resources in National Institute of Technology in North East, Conclusion and References.

Chapter-4 of the work deals with the Model Plan for National Institute of Technology in North East and it includes Introduction, Central Library of National Institute of Technology Surathkal, Logistic Support, Sources, Book-Bank, Special Collection, Services, Central Library of National Institute of Technology Warangal, Logistic Support, Digital Library, Institutional Repository, Services, Developing Library Network, Audio-visual, EDUSAT, Electronic resources, Best practices, Central Library of National Institute of Technology Kurukshetra, Book Bank, Opening hours, Resources, J-Gate Plus, NPTEL Web

& Video Courses, Indian and International Standards, including Proposed Model in National Institute of Technology in North East which shows Changes in Principles, Changes in Philosophy, Changes in Service Delivery and Enablers, Digital Library Service, Administration of Library Consortia in view of the Proposed Model, Management Structure, Objectives, Conclusion and References.

Chapter-5 of the study exclusively deals with the data analysis and findings concerning to Respondents, Category of Respondents, Gender wise, Library visit, Frequency of visit, Purpose of library visit, Searching of preferred documents, preference of information sources, purpose of internet access, location of access to e-resources, choice of access to e-resources, access to e-Shodh Sindhu Consortium and INDEST Consortium, network services rendered by the libraries, full text database available in the libraries, difficulties faced while using the library software, type of library software used in the libraries and the level of satisfaction of the library services followed by findings and conclusion.

Chapter- 6 of the study deals with suggestions and conclusions and finally the thesis ends with a comprehensive bibliography along with list of tables, appendices, annexure, figures and graphs.

### **1.6.5 Conclusion**

Technical Education plays an important role in human resource development of the country creating skilled manpower, enhancing industrial productivity and improving the quality of life of its people. Technical Education covers various programmes in engineering, technology, management and architecture, town planning, pharmacy, applied arts and crafts, hotel management and catering technology. Nowadays technical education has become very important due to the development of science and technology. In order to increase the relevance of technology, more research should be undertaken for improving the present technology and enhancing production and productivity. The main purpose of technical education within the country is to promote teaching, learning, and research in the field of science and technology. In order to achieve these goal academic libraries plays an important role and act as the main support to achieve its end. The study was undertaken to identify the current status of the NITs in the northeast region and the library services in each institute. Three major NITs within the country such as Surathkal, Kurukshetra, and Warangal shall be studied in specific about their library services so as to bring out a model plan for the libraries of NIT in northeast region. Many NIT libraries could extend their infrastructure capacities in the libraries to offer better services to students, researchers, faculty, and staff. Keeping in

view of the importance of the library and its services in the technical institutes, the scholar is motivated to study the various statuses of NIT libraries in the northeast region and the prospects of these institutes in developing their libraries which will contribute and act as the main support for the overall development of the institute. After discussing the introduction of NIT in India, the objective and statement of the problem and the significance of the study, the next chapter will deal with the NIT libraries in north east region.

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## 2.1 Introduction

An organization is a structure of hierarchical setup of various authorities who hold different portfolios depending upon their specialization and experiences for scientific management using their skills and effective function of the organization to meet the objectives. It, however, differs in its setup taking into account the type of organization. In the organizational setup, all the wings/jobs are interrelated and function in a coordinated way so as to meet its objectives. The manpower is classified into different classes who are responsible to perform to bring about the best output using their intelligence and skills. (Usman, <https://pmstudycircle.com/2012/08/what-is-a-functional-organization-structure/>).

Thus, organizational structure refers to a grouping of the systematically designed framework of an organization/institution for effective functions and to meet the objectives of the setup. The operative manual well explains the work associated with each wing of the setup which acts as a guideline for meeting the objectives of the organization and scientific management of each group with a productive output. Regardless of the type of organization, it is applicable to all but with a different vision, mission, and objectives. It primarily focuses on the distribution of duties and responsibilities among the manpower inducted. But it slightly differs in an educational setup where the responsibilities are shouldered by the heads of different divisions at par with other productive organizations and in addition to this, it centers on providing the best education to the scientists and engineers. The distribution of works in the organization concern to the following divisions:

(<http://ctb.ku.edu/en/table-of-contents/structure/organizational-structure/overview/>)

- ⇒ **Envisioning desired changes** : Here, the group associated with the management level visualize the initiation of a future course of action suit to the organizational setup and concentrate on making differences in achieving the goals.
- ⇒ **Transforming the community** : The top management applies their skill and experiences and frame strategies to produce the desired output through the manpower so as to make the community transformed through its application.
- ⇒ **Planning for integration** : To materialize the organizational objectives, a combined effort of the employee and management is indispensable and the management personnel apply and integrate their ideas strategically through the employees which yield value for the organization. They, in the process, segregate their thoughts into divisions so as to accomplish the intended output.
- ⇒ **Supporting the efforts of those working to promote change** : The management focuses on the consistent flow of economy to achieve their target as per the objectives of the organization. They also explore measures from different bodies to support their cause of action for a better and

sustainable growth of the organization in changing perspectives.

According to the guidelines initiated by Ministry of Human Resource Development, Government of India (Kakodkar Committee Report, 2014), each NIT in India has to operate under the direction and leadership of the Chairman and the Board of Governors (BOG) and the BOG under a stipulated timeframe has to achieve the target and emphasise on the following parameters.

- ⇒ Students intake and admission on merit in NITs,
- ⇒ Designing and Development of curriculum of NIT,
- ⇒ Teaching, learning, and evaluation,
- ⇒ Student Support and Progression,
- ⇒ Training and Placement,
- ⇒ Capacity Building of the Faculties,
- ⇒ Linkages with the industries,
- ⇒ Promoting Research and Development,
- ⇒ Maintaining Alumni Network,
- ⇒ Infrastructural Development and Resource Mobilisation and
- ⇒ Institutional Social Responsibility.

Setting up the NITs in the North East and spread of engineering education in the region is a challenging task and hence, it requires developing strategies not only to provide engineering education to the local students but also bring at par with national level by investing human and capital resources for the development of the region. Further, NITs open avenues towards industrial development and hence, the Government of India, through NITs initiated measures to strengthen the science and technical education including focussing its attention to research, innovation and patent formation, collaborative undertakings with industry especially in Micro Small & Medium Enterprise sector, Science & Technology based societal development, etc.

The technical institutes, which contribute a major share to the educational domain in India plays an indispensable role in human resource development throughout the country

leading thereby, enhancing and contributing to the social and sustainable economic growth of the country by not only creating skilled manpower but also increasing industrial productivity and various aspects of technological progress. India, being the third largest in higher education system in the world has undergone enormous changes by offering and creating avenues in various disciplines of the technical institutes in the country. To quote, All India Council for Technical Education (AICTE), a premier regulatory body for the technical education in India is responsible for coordinating and management of technical educations prevailing in the country. To define the concept of technical education, it connotes to imparting education other than general education, providing research and training in various fields, such as Engineering and Technology, Architecture, Town Planning and Management, Pharmacy and Applied Arts and Crafts etc. including such other programmes or areas as would be initiated by the Central Government in consultation with the AICTE through Gazette notification. AICTE has framed various norms and standards to regulate the technical institutes for maintaining uniformity and quality among these institutes. Some of the pedagogical challenges with regards to teaching and excellence in engineering education result from innovative teaching techniques and effective instructional materials. Therefore, to make effective, this constructivist approach for promoting higher education, the Government needs to initiate renovating the technical and engineering education sector not only to generate skilled professionals but also creative innovations for sustainable progress of the nation in developing infrastructures, power, information technology etc. and enhancing the capacity initiatives required by the country.

## **2.2 National Institute of Technology in Indian Scenario- An Overview**

National Institute of Technologies (NITs), the hub center of technological knowledge are a group of apex public engineering institutes in India and governed by NIT Act 2007 , are declared as an institute of national importance aboard the prestigious Indian Institute of Technology (IIT). All thirty one (31) NITs are funded by the Government of India since they receive special recognition from the Government of India. Consequent upon the success of the technology-based industry in India, the technical and scientific education increased leading thereby, the Govt. of India to upgrade the status of Regional Engineering College (REC) to NIT in 2002 involving enormous costs and infrastructures at par with IITs. It offers various courses at bachelor level and also in masters, and doctorate levels in various branches of engineering, architecture, management, and science. Apart from providing such courses, it emphasizes on research and development in all the fields of engineering.

To highlight some more insights of NITs, the Joint Seat Allocation Authority (JoSAA) and Centralized Counselling for M.Tech/M/Arch and M.Plan (CCMT) since 2015 controlled all undergraduate and postgraduate programs in all NITs. Mention may be made that, as of 2017, the total number of seats for undergraduate programs are 18,013 while, for post-graduate programs, it is 8,158 in all thirty one (31) NITs. (NIT Wiki.com)

A number of industrial projects which were set up in India during the second five-year plan (1956-1960) demanding to supply trained personnel and a decision were taken to start the Regional Engineering Colleges (RECs) which can churn out graduates with good engineering merits. Thus, seventeen (17) RECs were established from 1956 onwards where each college was a joint and cooperative enterprise of the central government and the concerned state government. The Government opened eight (8) RECs in 1960 two in each region. While, Durgapur and Jamshedpur were setup for the Eastern region, Nagpur, Surat, and Bhopal were instituted for Western Region, Warangal, and Surathkal for Southern Region, Srinagar, and Allahabad for the Northern Region. Later on, it increased to 5 more by 1965. NIT at Silchar was established in 1967 and two others in 1986 and 1987 were setup at Hamirpur and Jalandhar respectively. These RECs were upgraded to National Institute of Technology (NITs) in 2003 and were became fully funded institutes of the Central Government and also were granted deemed university status. By 2006, three more engineering colleges such as Bihar, Raipur, and Tripura were given the National Institute of Technology (NITs) status leading thereby, the total number of NITs rose to 20 at par with other national level technical institutes in India with the basic objective to enhance the technical manpower in engineering and technology. An Act, namely the National Institute of Technology Act 2007, has since been enacted by the Parliament so as to provide a common statutory framework for all NITs. Recognized as the institute of national importance the Central Government have established many new NITs in 2010, counting to 31 NITs across the country at present.

From among the NITs in India, some were established directly while some colleges/institutes were given the status of NIT. List of such NITs is given below in Table 3.

Table 3: Detail list of NITs in India (As on 2017)

Sl.No	Name	Place	Est. Year	Erstwhile Institute	Year of Estt.	NIT status	URL
1	National Institute of Technology	Agartala	-	Tripura Engineering College	1965	2006	<a href="http://www.nitagartala.in/">http://www.nitagartala.in/</a>

2	National Institute of Technology	Andhra Pradesh	2015	-	-	-	<a href="http://www.nitandhra.ac.in/">http://www.nitandhra.ac.in/</a>
3	National Institute of Technology	Arunachal Pradesh	2010	-	-	-	<a href="http://www.nitap.in">http://www.nitap.in</a>
4	Motilal Nehru National Institute of Technology	Allahabad	-	Motilal Nehru Regional Engineering College	1961	2002	<a href="http://www.mnmit.ac.in/">http://www.mnmit.ac.in/</a>
5	Maulana Azad National Institute of Technology	Bhopal	-	Maulana Azad College of Technology,	1960	2002	<a href="http://www.manit.ac.in/">http://www.manit.ac.in/</a>
6	National Institute of Technology	Calicut	-	Regional Engineering College	1961	2002	<a href="http://www.nitc.ac.in/">http://www.nitc.ac.in/</a>
7	National Institute of Technology	Delhi	2010	-	-	-	<a href="http://nitdelhi.ac.in/">http://nitdelhi.ac.in/</a>
8	National Institute of Technology	Durgapur	-	Regional Engineering College	1960	2003	<a href="http://www.nitdgp.ac.in/">http://www.nitdgp.ac.in/</a>
9	National Institute of Technology	Goa	2010	-	-	-	<a href="http://www.nitgoa.ac.in/">http://www.nitgoa.ac.in/</a>
10	National Institute of Technology	Hamirpur		Regional Engineering College	1985	2002	<a href="http://www.nith.ac.in">http://www.nith.ac.in</a>
11	Malaviya National Institute of Technology	Jaipur		Malaviya Regional Engineering College	1963	2002	<a href="http://www.mnit.ac.in">http://www.mnit.ac.in</a>

12	Dr. B.R. Ambedkar National Institute of Technology	Jalandhar		Dr. B.R. Ambedkar Regional Engineering College	1986	2002	<a href="http://www.nitj.ac.in">http://www.nitj.ac.in</a>
13	National Institute of Technology	Jamshedpur		Regional Institute of Technology	1960	2002	<a href="http://www.nitjsr.ac.in/">http://www.nitjsr.ac.in/</a>
14	National Institute of Technology	Kurukshetra		Regional Engineering College	1963	2002	<a href="http://www.nitkkr.nic.in">http://www.nitkkr.nic.in</a>
15	National Institute of Technology	Manipur	2010	-	-	-	<a href="http://www.nitmanipur.in/">http://www.nitmanipur.in/</a>
16	National Institute of Technology	Meghalaya	2010	-	-	-	<a href="http://www.nitm.ac.in/">http://www.nitm.ac.in/</a>
17	National Institute of Technology	Mizoram	2010	-	-	-	<a href="http://www.nitmz.ac.in/">http://www.nitmz.ac.in/</a>
18	National Institute of Technology	Nagaland	2010	-	-	-	<a href="http://nitnagaland.ac.in/homenew/">http://nitnagaland.ac.in/homenew/</a>
19	Visvesvaraya National Institute of Technology	Nagpur		Visvesvaraya Regional Engineering College	1960	2002	<a href="http://www.vnit.ac.in">http://www.vnit.ac.in</a>
20	National Institute of Technology	Patna		Pleaders Survey Training School	1886	2004	<a href="http://www.nitp.ac.in">http://www.nitp.ac.in</a>
				Bihar College of Engineering	1924		
21	National Institute of Technology	Puducherry	2010	-	-	-	<a href="http://www.nitt.edu/home/nitp/">http://www.nitt.edu/home/nitp/</a>
22	National Institute of Technology	Raipur		Government Engineering College		2005	<a href="http://www.nitr.ac.in">http://www.nitr.ac.in</a>

23	National Institute of Technology	Rourkela		Regional Engineering College	1961	2002	<a href="http://www.nitrkl.ac.in">http://www.nitrkl.ac.in</a>
24	National Institute of Technology	Sikkim	2009	-	-	-	<a href="http://www.nitc.ac.in/sikkim/">http://www.nitc.ac.in/sikkim/</a>
25	National Institute of Technology	Silchar		Regional Engineering College	1967	2002	<a href="http://www.nits.ac.in">http://www.nits.ac.in</a>
26	National Institute of Technology	Srinagar		Regional Engineering College	1960	2003	<a href="http://www.nitsri.net">http://www.nitsri.net</a>
27	SardarVallabhbhai National Institute of Technology	Surat		SardarVallabhbhai Regional Engineering College	1961	2002	<a href="http://www.svnit.ac.in">http://www.svnit.ac.in</a>
28	National Institute of Technology	Suratkal		Karnataka Regional Engineering College	1960	2002	<a href="http://www.nitk.ac.in">http://www.nitk.ac.in</a>
29	National Institute of Technology	Tiruchirapalli		Regional Engineering College	1964	2003	<a href="http://www.nitt.edu">http://www.nitt.edu</a>
30	National Institute of Technology	Uttarakhand	2010	-	-	-	<a href="http://www.nituk.com/">http://www.nituk.com/</a>
31	National Institute of Technology	Warangal		Regional Engineering College	1959	2002	<a href="http://www.nitw.ac.in">http://www.nitw.ac.in</a>

Source: [mhrd.gov.in](http://mhrd.gov.in) > Higher Education

It could be found that there is a growth of 45% with the establishment of 14 NITs in India in 2002 followed by 29% with 9 in 2010, 10% with 3 in 2003 and 3% with 1 each in the year 2004, 2005, 2006, 2009 and 2015 respectively.

Apart from providing quality education in the field of science and technology, the NITs in India are also committed to promoting entrepreneurial culture among students by arranging various programmes coupled with developing campus with fibre optic computer

networking and opening with Industry-Institute interaction Cell to promote and nurture closer interaction with the industrial sector and to play a significant role in its growth. It could be mentioned that NIT, Rourkela is the nodal center for the National Technical Manpower Information System in Orissa.

### **2.2.1 National Institute of Technology in North-East: A Glimpse**

The prime focus of the Govt. of India is to promote education in science and technology at par with other places in India and also to develop skilled manpower to meet any eventuality for sustainable development of the economy of the region. With this perspectives coupled with capacity building among the aspirants of North-East, the Govt. of India took initiatives instituting NITs in North East and altogether, eight (8) NITs, one in each state such as, Arunachal Pradesh, Agartala (Tripura), Manipur, Mizoram, Nagaland, Meghalaya, Sikkim and Silchar as shown in the above Table.

#### **2.2.1.1 National Institute of Technology Arunachal Pradesh**

Concentrations of Govt. of India towards accelerating skills, higher education in science and technology among the aspirants in various parts of North East were initiated with the establishments of National Institute of Technologies. In 2010, Arunachal Pradesh was commissioned with the establishment of National Institute of Technology as one of the members of the newly established NITs in the country with an intention to provide excellence in technical education to combat the growing demand for technological professionals. Under the mentorship of NIT, Durgapur and till the first permanent Director Prof. ChandanTilak Bhunia, it started functioning temporarily in a rented building in Yupia and is still continuing till a permanent building surmounted with beautiful green forest and mountains at Jote in Papumpare District is constructed for making ideal academic environment.

The vision and mission of NIT Arunachal Pradesh is tamed with four pillars of Education, Research, Service to society and Ethics, in pursuit of which several noble approaches are in framing syllabus, selecting judicious new disciplines for UG and PG studies, introducing Ph.D. programmes undertaking social services and introducing country specific programmes. (Bhunia, Annual Report, 2014-15).

The vision of the institute solely rests on quality improvement in technical education and imparting knowledge in all the streams of the Institute. Further, it emphasizes on interactive interactions to get abreast with the students in all disciplines and promote innovative thinking and contribute to developing entrepreneur technology leadership for



national development. Moreover, the vision focuses on to excel a profound sense of humanistic and ethical values.

The mission of the institute is to produce committed and dedicated engineers who can prove themselves worthy in all sectors for a sustainable and inclusive growth of the nation.

For more academic benefits to the faculties, students, researchers, the institute has developed a mechanism of quick links as discussed below.

- ☞ Training and Placement Cell,
- ☞ Research and Development Cell,
- ☞ IEEE student chapter, NITAP
- ☞ Webmail,
- ☞ Innovation club,
- ☞ Green Environment Practice,
- ☞ NSS,
- ☞ Proceedings and Publications,
- ☞ Undergoing projects.

It further, foster links to the related websites in the institutional website to excel the academic performances.

- ☞ CCMT (Centralised Counselling for M.Tech/M.Arch/M.Plan Admissions)
- ☞ CSAB-17 (Central Seat Allocation Board, Joint Entrance Examination (Main), 2017)
- ☞ DASA, (Direct Admission of Students Abroad, 2017, A scheme of Ministry of Human Resource Development, Govt. of India)
- ☞ CCMN, (Centralised Counselling for M.Sc(Tech)/M.Sc.)
- ☞ MHRD (Ministry of Human Resource Development, Govt. of India)

While briefing the educational courses offered by NIT Arunachal Pradesh, it provides an undergraduate program in seven various engineering courses such as Civil engineering, Electronics and Communication Engineering, Computer Science Engineering, Mechanical Engineering, Chemical Engineering and Biotechnology Engineering with a well qualified 50 faculties. The institute is equipped with adequate infrastructure to support various academic programs and physical faculties.

### **2.2.1.2 National Institute of Technology, Agartala.**

Erstwhile established Tripura Engineering College, Agartala in 1965 controlled and managed by the Higher Education, Government of Tripura was alleviated to a centrally funded National Institute of Technology at Agartala to impart quality technical education in

various levels of higher learning. It was the consequential effect of the State Government, Tripura who mooted the proposal to establish National Institute of Technology (NIT) at Agartala and approval by the Union Cabinet in 2006 was accorded accordingly for the same along with augmentation of the Tripura Engineering College to National Institute of Technology status to produce skilled technocrats for sustainable development of economy. The institute was accorded with deemed university status and recognized as a National Centre of Excellence. Thus, NIT, Agartala commenced its journey in the map of technical education initially starting with three traditional branches of Civil, Electrical, and Mechanical Engineering. Mention may be made that, it was affiliated to Calcutta University with the same curriculum structure and examination system at par with Bengal Engineering College (presently Bengal Engineering and Science University, Shibpur). Later, it got affiliation from Tripura University with approval by All India Council for Technical Education (AICTE). Subsequently, the Institute commenced with career development courses like Computer Science and Engineering, Electronics, Production and Transportation Engineering, Chemical Engineering & Instrumentation Engineering and Bio Engineering along with Post-Graduate courses to cater the needs of the technical manpower. The Institute also provides courses of higher study in MCA, M. Sc., MBA. To promote fundamental research, it also has Ph.D. along with Post-Doctoral Fellowship programs in various fields of specializations of Engineering, Science, and Humanities & Social Sciences. The School of Management has also been started to produce management professionals, skilled with analytical and administrative ability. (<http://www.nita.ac.in/NITAmain/AR/AnnualReport-2015-2016-English.pdf>)

The Institute is one of the twenty (20) National Level Technical Institutes setup by the Government of India, its mission is to help to improve the economic development of the country particularly the North- East states and also the public systems, through the pursuit of excellence in technical education, research, consultancy, and training. The institute is well equipped with basic infrastructure facilities for conducting various undergraduate courses satisfactorily. Qualified and experienced faculty members maintained these facilities with the support of technical staffs. The various infrastructures include a well-stocked library, workshop, laboratories and computer facilities etc. Central Computer Laboratory with the centralized server is operational. The campus has the Intranet facility for file sharing and communication. The campus is connected through Wi-Fi with WiMAX wireless backbone. The students actively participate in co-curricular activities like games, sports, debate, cultural

functions, essay competitions and NSS programs etc., sponsored by the State Government and other statutory bodies.

The institute is established with a mission to flourish the economic development of the nation in general and North-East states in particular through providing a sustainable education and promoting research and development in the field of engineering. However, the objectives of the Institute encompass with to encourage technical education both in governmental and non-governmental sectors by providing education to the young and aspiring technocrats including training to the corporate executives and consultancy and research. The Institute apart from providing sustainable education in the field of engineering also equally emphasize on research programs suitable to the north east area. It also includes the objective to provide transparent technical knowledge for the sustainable development of nation's economy through entrepreneurship including finding solutions to the problems associated with the industry. (<http://www.nita.ac.in/NITAMain/institute/institutehome.html>)

The institute also provides adequate information relating to the career developments including faculty development on its website. Links provided through career development, webmail, MIS Access, consultancy rules help the students, researchers, faculties and also the industrialists not only help them to get access to future guidance but also improve the industrialists.

### **2.2.1.3 National Institute of Technology, Manipur**

National Institute of Technology (NIT) Manipur, an autonomous institute of national importance was established in the year 2010 by the Ministry of Human Resource Development, Government of India. The institute has acquired 341.5 acres of land in lush green areas of Langol, Imphal but in the absence of a permanent building which is under construction, the campus is presently functioning temporarily at Takyelpat, Imphal. The Institute is administered by the Director of the Institute under the direct supervision of Board of Governors (BOG) headed by the chairman of the Board of Governors as the institute is registered under Manipur Societies Registration Act, 1989. The institute has all basic infrastructural facilities for conducting undergraduate courses satisfactorily with an adequate number of experienced faculty members. The various facilities available in the institute are as follows:

- Centralized Library
- Computer Laboratory(Development-wise)

- Workshops
- Upgrade Laboratories with latest equipment's
- Campus Internet (Local Area Network)

The institute is presently imparting education in Civil Engineering, Computer Science and Engineering, Electrical Engineering, Electronics and Communication Engineering, Mechanical Engineering, Physics, Chemistry, Mathematics, Basic Science, and Humanities. It not only has envisions to make the institute as a leading technical institutes in South East Asia (<http://www.nitmanipur.ac.in>) by recruiting qualified faculties to provide qualitative education in the field of engineering and technology but also making out efforts to allure the students for induction to the institute from the South East Asian countries in conformity with the Look East Policy of the Central Government.

An Institute of National Importance, the institute is well recognized as a knowledge center for the technical education and is avowed to produce skilled technopreneurs for sustainable development of national economy and the state as well. With such a high ambition, the Institute adequately promotes research and development to the engineers who can prove themselves worthy in the national as well as the global platform.

The institute stands by its objective to produce skilled brains and achieving academic excellence by the students along with promoting entrepreneurs inside and outside the state through the talented brains so that, they will contribute to generating employment in the region (<http://www.nitmanipur.ac.in>).

#### **2.2.1.4 National Institute of Technology, Silchar**

National Institute of Technology Silchar, a hub center of technical knowledge is a premier and prestigious national level institute in technical education which facilitates higher education in science and technology in the north east region. Established as a joint venture by the Government of India and the State Government of Assam in 1967 as Regional Engineering College, its main objective focuses in imparting quality-engineering education, providing cosmopolitan outlook among students and development of national integrity. It has been transformed and upgraded to National Institute of Technology, Silchar with a Deemed University Status with effect from 28<sup>th</sup> June 2002. Fully funded by the Govt. of India, the institute was bestowed with national importance status by enacting the National Institute of Technology Act 2007 for contributing to the sustainable national economy through skilled technocrats in various fields of engineering, science, and technology (<http://www.nits.ac.in>).

The institute is continuously making effort to design its curriculum and academic activities at par with the IITs in India.

The institute facilitates physical amenities in many dimensions to make the environment more feasible for academic culture. Physical facilities provided by it for recreation include a playground, shopping center, bank etc with an upcoming mini sports complex for various types of outdoor and indoor games for the students. The workshop of the Mechanical Engineering Department acts as a central workshop and nodal center for the various project works of the students and researchers. However continuous efforts are being made to augment the facilities of the workshop commensurate with the change in technology.

While tracing a brief genealogy of the institute, it was set up as Regional Education Centre (REC) in 1967 at Silchar as a pathfinder and providing quality technical education in the entire north-east under the Quality Technical Education Policy of Govt. of India. A premier institute of North East, REC, Silchar rose to the height in the national platform due to excellent teaching in technical fields. The primary objectives behind instituting the NIT are not only restricted to providing quality teaching, building confidence and talent to compete in national and international markets among the young technocrats but also encourage research and development in various disciplines so as to prove them as an asset to the industry domain for sustainable economic development of the nation. Moreover, it promotes the industrialists with the understanding of new technology and technical know-how to implement in their industries for the maximum output. The values of the Institute rests on six major parameters such as, (i) Sustainable development of economy state and the national as a whole and transformation of livelihood of the people, (ii) Freedom of thought and expression in education domain and originality in research, (iii) Treasure the human value, knowledge and ethics for the development of the institute, (iv) Catering value-added education without any discrimination to any class, (v) Boosting research outputs among the faculties and research scholars, and (vi) Contributing to develop a technologically sound informed engineers and proactively serve the society including skill development among the workers and industrialists for a visible growth in products (<http://www.nits.ac.in>).

The Institute equally gives emphasis in allowing access to various websites for the academic developments of the faculties, researchers and the students which enable them to download a wide range of information in various areas of career development including fellowships. This is an encouraging endeavor of the institute which excels the information need of the academicians and the students as well for various purposes. In the process, the institute provides quick links to various organizations including academic department and the

resource center to extend instant academic benefits to the inmates. Moreover, it also countenances external links to various national level websites to obtain national information which adds value in promoting academic achievements, research etc. The Institute apart from such links also furnishes links to the library where, the users can access the collections through OPAC including the links to minutes of various committees, Acts and Statutes, Annual Reports and governments' order released from time to time. This not only nourishes the minds of the inmates with the current status of the institutes but also espouse the academicians and the students to adapt it.

### **2.2.1.5 National Institute of Technology Meghalaya**

To cater the needs of the young aspirants with technical knowledge and to produce technocrats in the region, the National Institute of Technology at Meghalaya was setup by the NIT Act in 2007 (Amended in 2012) with funding support from the Ministry of Human Resource Development, Government of India (<http://nitmeghalaya.in>).

The institute commenced its journey in technological education at Sardar Vallabhat National Institute of Technology (SVNIT) Surat, as its mentor till December 2012 and thereafter, it became independent. Located at a temporary campus at Bijni complex in Laitumkhrah of North Eastern Hill University, the institute stepped out with B.Tech program in Electronic and Communication Engineering, Computer Science and Engineering, Electronic and Electrical Engineering, Civil Engineering and Mechanical Engineering, M Tech program has been started from 2014 session. The institute, from 2015 session commenced M.Sc on Physics, Chemistry and Mathematics were started in August 2013. Admission is based on JEE (Main) (replacing AIEEE) conducted by Central Board of Secondary Education (CBSE) and through counseling conducted by Central Seat Allocation Board (CSAB) (<http://nitmeghalaya.in>).

The Institute is committed not only to produce vibrant technocrats by providing quality education with innovation and creativity in various streams of Engineering, Science and Technology both at undergraduate and post-graduate level but also to contribute substantially to developing a sustainable economy in the nation in general and the state in particular. It further, underlines on research in various subjects so as bring out a new state of knowledge for implementation in various industry. The institute functions on the principle of some recognised guidelines which principally focus attention to contribute a knowledge-based society, reaching the expertise to the ground level for excelling the production in various industrial sectors, providing the benefits of new technology for better return value on

investment, generating economy and skilled manpower in the state and also in the entire nation, and protecting the environment using the technology.

NIT Meghalaya provides basic amenities to the students, research scholars to create a conducive environment not only in the creation of a better state of learning but also avoid health hazardously. Further, the Institute furnishes useful quick links to maintain the spirit of learning and acquiring information in most relevant areas which enrich the level of understanding and implementation. The direct links provided by the Institute through its website excel the knowledge horizon of students, researchers, and the faculties in connection with the clean environment, international collaboration, annual reports etc. This is the way through which the students, researchers are encouraged not only to gain knowledge in different areas but also contribute to publications. The inmates of the institutes are facilitated with a direct link to the central library so as to take the benefits of the availability of resources through OPAC. Moreover, the website provides an external link to the authentic resource sites through which the inmates not only can directly download the useful resources for their learning, teaching, and research but also apply online for different fellowship.

#### **2.2.1.6 National Institute of Technology Mizoram**

To meet the consistent demand for technical and scientific education and to make the state Mizoram, the National Institute of Technology Mizoram was set up by the Ministry of Human Resource Development, Government of India in 2009. The institute commenced its functioning in 2011 from the camp, Nagpur under the mentorship of VNIT branches of engineering which include Electrical and Electronics Engineering, Electronics and Communication Engineering and Computer Science and Engineering. (<http://www.nitmz.ac.in>). With an avowed principle of flourishing technical education and to create young technocrats in the state, the institute governed by the National Institute of Technology (Amendment) Act, 2012, No. 28 of 2012 (An Act to Amend the National Institute of Technology, 2007) was designated as Institute of National importance. The Institute came into existence with a mission to provide quality based education among the young aspirants throughout the state and the adjoining states of North East. However, the Institute is open to the entire nation. The engineers could prove their worthiness for developing the nation in general and northeast in particular. It also equally stresses upon in budding excellence in research in the field of scientific and technical education.

In the absence of a permanent building, the Institute at present is functioning in hired buildings at Chaltlang, Aizawl. To explain its functioning, various academic blocks including

an administrative block of the Institute are located in four(4) different rented buildings in the city. The Institute is being administered by the Director of the Institute under the direct supervision of BOG headed by Chairman. The Director of the Institute is ex-officio Member of the BOG.

The Institute at present offers UG programs leading to the degree of Bachelor of Technology (B.Tech) in Electrical & Electronic Engineering, Electronics & Communication Engineering and Computer Science & Engineering. Flourishing of education, research and training depend upon the initiatives undertaken by the organization. There is a visible difference of the Institute which could able to provide the faculties, researchers and the students a wide array of information domain by providing links in its website which not only shape their knowledge horizon through access to the knowledge repositories sites but also come across with many constructive inputs in connection with administrative matters, employment guidance, future studies etc. The Institute has developed a state-of-the-art technology for the students to be self-sufficient to smoothly handle the situation especially in the industry belts including guiding to raise the productivity of the industry by way of applying new technology and developing capacity building among the industrialist and the workers.

#### **2.2.1.7 National Institute of Technology Nagaland**

National Institute of Technology (NIT) Nagaland, a premier institute in North East was set up by the Government of India in 2009 as part of the Eleventh Five Year Plan (2007-2012) for imparting scientific and technical education. The vision of the Institute is focussed on advancement of knowledge not only through providing quality education but also research in developing a skilled manpower to contribute in developing a knowledge-based society. Under the mentorship of NIT Silchar, NIT Nagaland commenced its education for two years leading thereby, the students of NIT Nagaland to complete their academic from 2010-2014 at NIT Silchar and in September 2012, the Institute commenced its courses in its home state Nagaland. Fully funded by the Ministry of Human Resource Development, Government of India, the institute was committed to developing skills among the technocrats not only for their personal development but also to redress the problems of the society especially in the industry sectors. The Institute provides an advanced technology environment to equip the students to meet any eventuality encountered by the industrialists in the region. Equally, it emphasizes on innovation in learning, research, and faith in human value. The other issues



relate to developing capacity in design, development and technology management for sustainable development state and national economy.

([http://nitnagaland.ac.in/templates/g5\\_helium/PDF/OTHERS/NIT\\_Nagaland\\_Annual\\_Report\\_Audit%20Report\\_2015-16.pdf](http://nitnagaland.ac.in/templates/g5_helium/PDF/OTHERS/NIT_Nagaland_Annual_Report_Audit%20Report_2015-16.pdf)).

The Institute is committed to marching forward as drivers of innovation in education and research to achieve professional objectives. Achieving excellence in technical education and research for improving the human condition, contributing to developing knowledge society, achieving a value of qualification through national development are some of the vision plans of the Institute. The mission of the Institute concentrates on not only to strengthen the young technocrats with sound knowledge in Science and Technology but also to develop the skill to meet the challenges of the 21<sup>st</sup> century. It is also obligated to disseminate and preserve the knowledge for future use. The Institute is avowed in achieving academic excellence by providing state-of-the-art technology resources for contributing the society especially the industry for bringing sustainable economy in the state and the nation including creating human value. It works on the directions of making the scientists and technocrats to prove their worthiness as leaders in the research including designing, developing and managing the technology to meet the instant challenges in the country (<http://nitnagaland.ac.in>).

The external and internal links on the website of the NIT Nagaland proves to develop knowledge horizon of the students, researchers, and faculties not only in the field of education but also retaining the culture and tradition of the state and also the country. In fact, this is the platform for communal harmony. To state, Ekarikthin, a link on the website portrays various cultures of India which focus on unity in diversity and this measure of the institute not only promotes the cultural value of the society but also helps in eradicating disparity. (<http://ekarikthin.com/>).

The NIT Nagaland has developed the Campus Network, Datacentre, IP Telephony and Wireless Network to enhance the computing facility of the Institute by deploying several dedicated Servers to run a various application that enhances the education and research. It also has developed Campus Networking components for Data, Voice & Video Communication, Network Security-Firewall & Antivirus, and Servers including Storage for enhancing the computing facilities and protecting the Data.

### **2.2.1.8 National Institute of Technology Sikkim**

NIT Sikkim, a premier institute is one among the ten newly sanctioned NITs established under 11<sup>th</sup> Five Year Plan by the Government of India. It is an autonomous institute situated in South Sikkim and is functioning under the aegis of Ministry of Human Resource Development (MHRD), Government of India. In the absence of a permanent campus which is coming up at Pakyong, it is presently functioning in Ravangla campus temporarily. The academic session commenced at NIT Sikkim in 2010 with three engineering departments such as Computer Science and Engineering, Electronic and Communication Engineering and Electrical and Electronic Engineering at the undergraduate level. It is now offering four years Bachelor of Technology in the following department such as Computer Science and Engineering, Electronic and Communication Engineering and Electrical, Electronic Engineering, Civil Engineering, Mechanical Engineering, and Biotechnology. It also is offering two year Master of Technology program in Computer Science and Engineering and Ph.D. in many disciplines. The institute expanded its academic curriculum in the fields in Science department consisting of Mathematics, Physics, and Chemistry. Allied departments are also been introduced in the Institute for Humanities and Social Sciences. The mission of the Institute is to extend value added learning at par with world science and technology and the objective lies on developing the ‘Thinking Engineers’ among the young technocrats through sound educational instructions in various field of science and engineering and promoting research and development so that, the scientists and engineers of the Institute can be worthy enough to shoulder the responsibility of state and national development. Further, their expertise in the various streams of science and technology can well be executed in the industries for better production and generating skilled manpower in various sectors.

The Institute is a part of multi gigabit, a national research and education network known as National Knowledge Network (NKN). All the academic buildings and laboratories are Wi-Fi enabled and are connected through high-speed Local Area Network (LAN). There are a few technical and cultural fests which are hosted by the Institute such as Ahiyantra which is an annual technical festival, Udgam, an annual cultural festival by the student union, Anuvrat, an event by the department of Electrical and Communication Engineering and Yantrikaa, an event by the Mechanical Engineering.

The organisational structures of all eight (8) NITs discussed above are appended in Appendix-I to Appendix-VII which clearly spells out the function of the Institutes.

## 2.3 Conclusion

From the aforesaid discussions, it could be pointed out that, there is a positive approach of the Government of India to expand the horizons of science and technology education and linkage education with the industries through NITs in various parts of North-East for a sustainable growth of economy in the states and also in the national level as well. Further, technical education serves as the nucleus for human resource development of the country since it creates highly skilled personnel enhancing the industrial productivity thus improving the quality of life. The creation and emergence of technical education arose out of the necessity for training, construction, and maintenance of the public building, roads, town planning, architectural work, applied arts and crafts etc. Technical education emphasizes the understanding and practical application of basic science, mathematics and engineering technology.

Regional Engineering Colleges (RECs) were first set up by the Planning Commission in 1955 with two colleges in each region- east, west, north & south, as a joint and co-operative venture of the Central and State Governments which were registered as autonomous bodies under the Society Registration Act 1860. The main aim of setting up these RECs was to create the required technical manpower by providing undergraduate education and training in different branches of engineering & technology. Further, the RECs were also envisaged to function as pace setters and to provide academic leadership to the technical institutions in their respective regions. In 2003, the Seventeen erstwhile Regional Engineering Colleges (RECs) was rechristened as National Institute of Technology (NITs) and taken over as fully funded institutions of the Central Government. The total number of NITs has gone up to 20 by 2006, and now in 2017, the number of NITs has gone up to 31 (mhrd.gov.in > Higher Education). These institutions are expected to be at par with other national level technical institutes and be able to fulfill the demand of high-quality undergraduate and postgraduate level of education in engineering and technology. An Act, namely the National Institute of Technology Act, 2007 has since been enacted by Parliament which took effect on 15<sup>th</sup> August of that year. The Act was passed so as to provide a common statutory framework for all NITs across the country. The law designates each NIT as an Institute of National Importance (INI). An Institute of National Importance is defined as a pivotal player in developing highly skilled personnel within the specified region of the country. In 2002, the Government took up major initiatives by converting Regional Engineering Colleges to National Institute of Technology and in 2010, announced setting up of new NITs in the remaining states/territories. This would

lead to every state in India having its own NIT. The target is to fulfill the need for quality manpower in the field of science, engineering, and technology within the country.

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## ORGANISATIONAL CHART OF NITs IN NORTH EAST

Annxure-I

### ORGANISATIONAL CHART NIT MEGHALAYA

The organisational chart of NIT, Meghalaya is depicted in Figure-1 below:

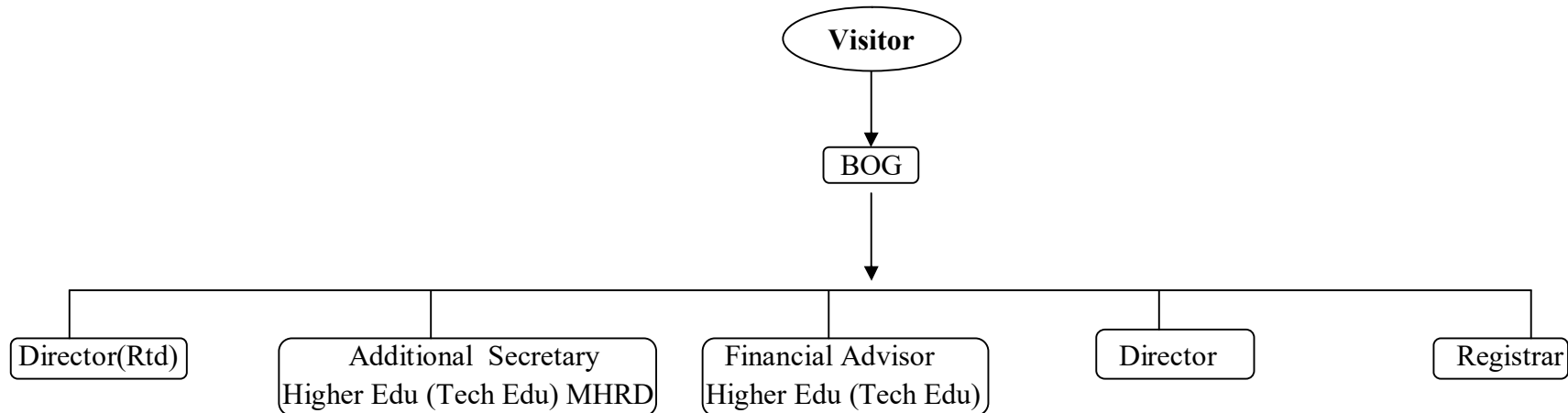


Figure-1: Organisational Chart of Board of Governors NIT, Meghalaya

#### Highlights

- ☞ The visitor is the President of India and the Chairman of NIT Meghalaya.
- ☞ The Director IIT Guwahati holds the total responsibility with 4 members from the various parts of NITs in India.
- ☞ It runs through a Board of Governors where 5 members are associated with: 1) Director (Rtd) Bongaigaon Refinery and Petroleum Ltd, Tura, 2) Additional Secretary, Dept of Higher Education (TE), MHRD, GoI, 3) Financial Advisor, Dept of Higher Education (TE), MHRD, GoI, 4) Director, NIT Meghalaya, 5) Registrar, NIT Meghalaya Secretary.

## SENATE COMMITTEE (NIT, Meghalaya)

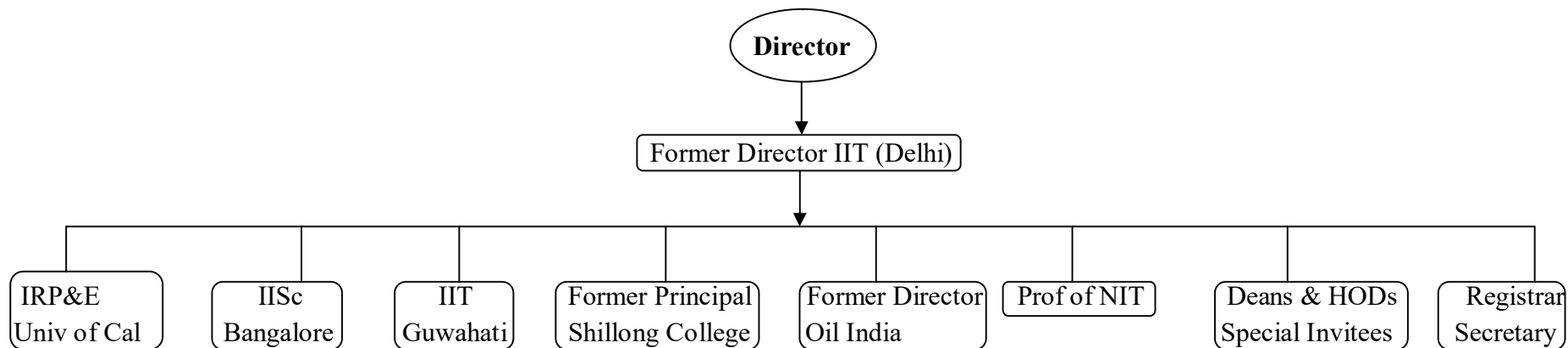


Figure-2: Organisational Chart of Senate Committee NIT, Meghalaya

**Highlights**

☞ The NIT runs the administration through a senate committee where the Director is the Chairman and other members of the committee constitute 1) Former Director, IIT Delhi, 2) Additional Secretary Prof (Rtd) Institute of Radio Physics & Electronics, University of Calcutta, 3) Prof , Dept of Civil Engineering, IISc Bangalore, 4) Prof Dept of Mechanical Engineering, IIT Guwahati, 5) Former Principal , Shillong College, 6) Former Director, Oil India, 7) Professor of NIT Meghalaya 8) Deans and Head of Departments, Special Invitees 9) Registrar, NIT Meghalaya.

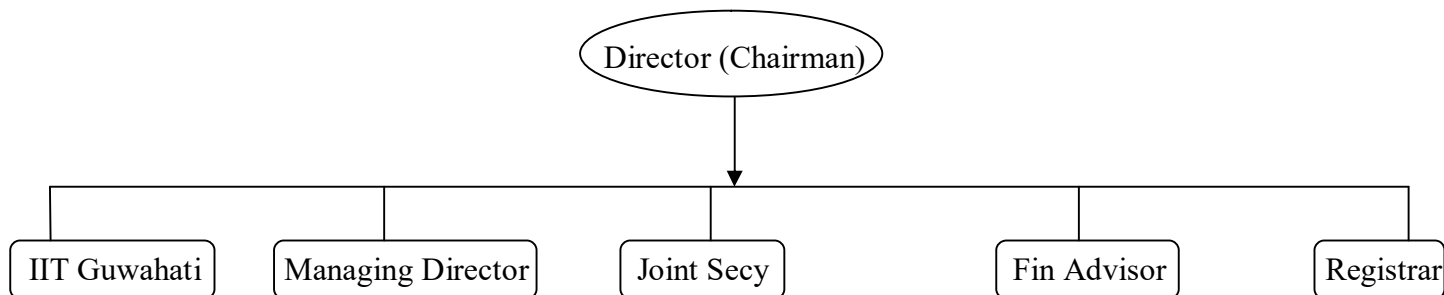
**FINANCE COMMITTEE (NIT, Meghalaya)**

Figure-3: Organisational Chart of Finance Committee NIT, Meghalaya

**Highlights**

- ☞ To look after the financial activities of NIT Meghalaya it is supported with a finance committee where NIT Director is the Chairman and the other members constitute 1) Professor, Dept of Electronics & Electrical Engineering, IIT Guwahati, 2) Managing Director, Meghalaya Power Carriers Pvt Ltd, 3) Joint Secretary or his nominee, Dept of Higher Education, MHRD, GoI, 4) Finance Adviser, MHRD or his nominee 5) Registrar, NIT Meghalaya

### ORGANISATIONAL CHART NIT AGARTALA

The Organisational Chart for NIT Agartala can be shown as below:-

#### Board of Governors (NIT Agartala)

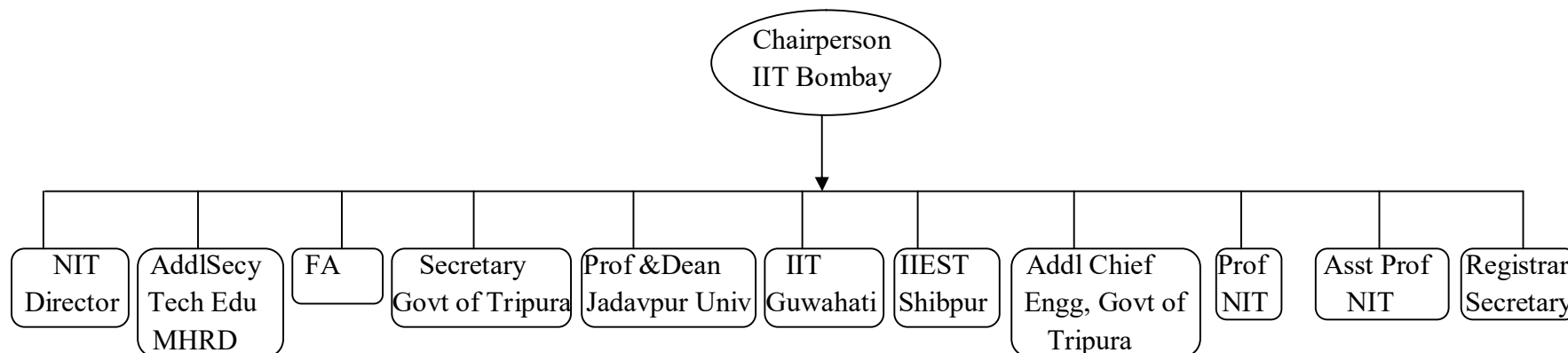


Figure-4: Organisational Chart of Board of Governors NIT, Agartala

#### Highlight

- ☞ The NIT Agartala is governed by 11 members constituting of the i) Director, Addl Secretary, Higher Education, MHRD, ii) Financial Advisor from Higher Education, MHRD, iii) Secretary to the Government of Tripura, iv) Prof and Dean, Jadavpur University, v) Prof, IIT Guwahati vi) Prof from IEST, Shibpur vi) Additional Chief Engineer, Government of Tripura vii) Prof nominee from NIT Agartala, viii) Asst Prof nominee from NIT Agartala ix) Registrar as Member Secretary.



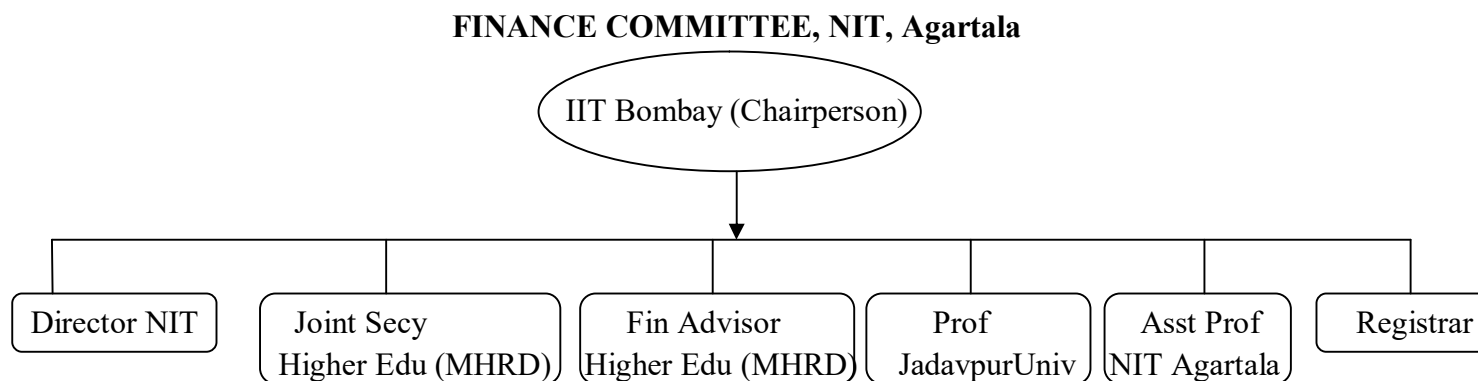


Figure-5: Organisational Chart of Finance Committee NIT, Agartala

### Highlight

- ☞ The financial activities of NIT Meghalaya is supported with a finance committee where the Chairman is Prof from IIT Bombay and the other members constitute 1) Professor, Dept of Electronics & Electrical Engineering, IIT Guwahati, 2) Managing Director, Meghalaya Power Carriers Pvt Ltd, 3) Joint Secretary or his nominee, Dept of Higher Education, MHRD, GoI, 4) Finance Adviser, MHRD or his nominee 5) Registrar, NIT Meghalaya .

## SENATE COMMITTEE (NIT Agartala)

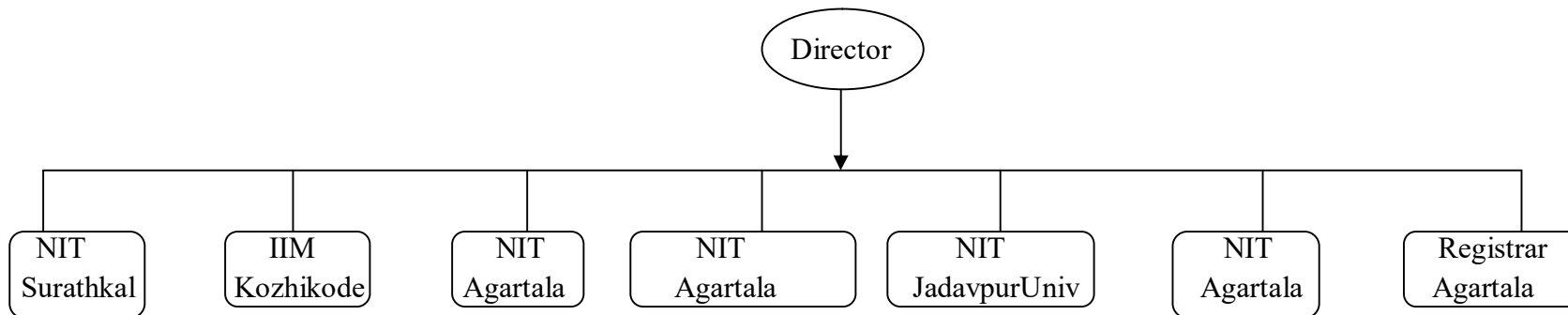


Figure-6: Organisational Chart of Senate Committee NIT, Agartala

**Highlight**

☞ The Senate Committee of NIT Meghalaya consist of the following members 1) Professor, Department of Chemistry NIT Surathkal, 2) Professor , IIM Kozhikode, 3) Professor , NIT Agartala, 4) Professor , NIT Agartala, 5) Professor of Metallurgy and Dean of Engineering, Jadavpur University, 6) Professor , Department of Civil Engineering, NIT Agartala 7) Registrar

**ORGANISATIONAL CHART NIT MANIPUR**

The organisational chart of NIT, Manipur is depicted in Figure below:

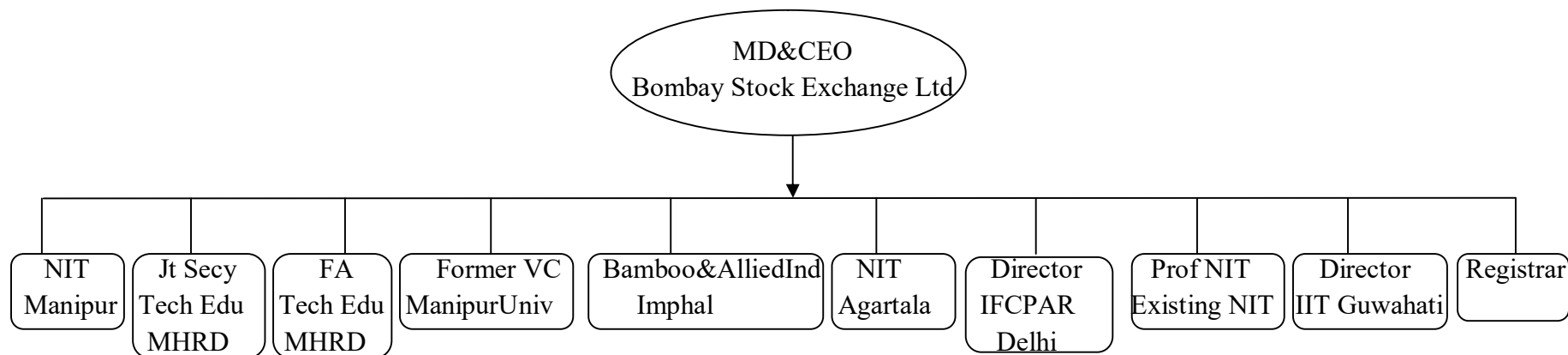
**BOARD OF GOVERNORS( NIT Manipur)**

Figure-7: Organisational Chart of Board of Governors NIT, Manipur

**Highlight**

- ☞ The NIT Meghalaya Board of Governors members consist of 1) Distinguished Professor in ISRO, Bangalore 2) Director of NIT Manipur, 3) Joint Secretary, Technical Education, Dept of Higher Education MHRD 4) Financial Adviser, Dept of Higher Education MHRD 5) Former Vice Chancellor, Manipur University 6) Proprietor, M/S Bamboo Allied Industries, Imphal 7) Prof & HOD NIT Agartala 8) Director, Indo-French Centre for Advanced Research 9) Prof/Asso Prof/Asst Prof of the existing old NITs 10) Director NIT Guwahati 11) Registrar NIT Manipur.

## FINANCE COMMITTEE (NIT Manipur)

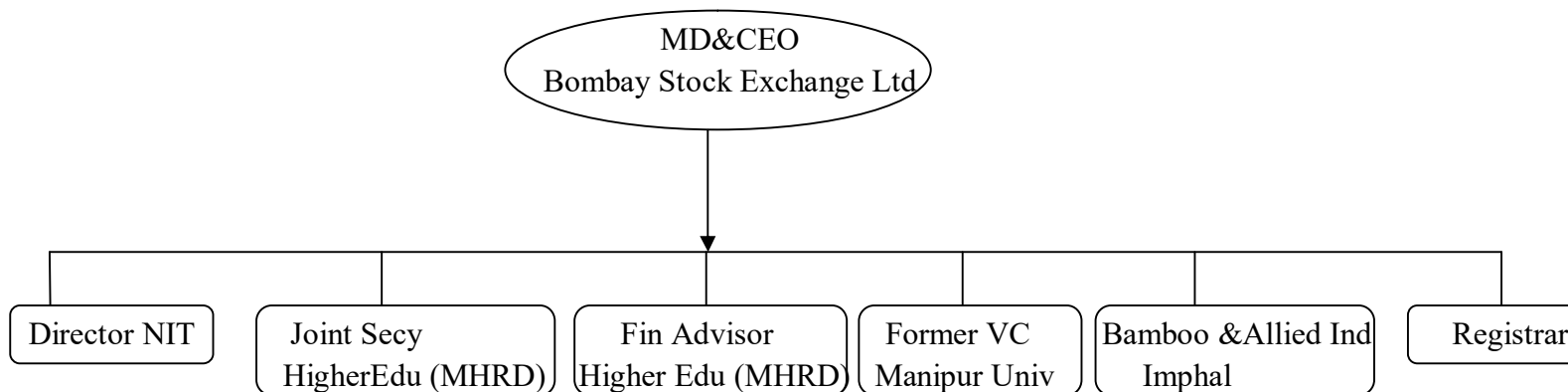


Figure-8: Organisational Chart of Finance Committee NIT, Manipur

**Highlight**

- ☞ The financial activities of NIT Manipur is undertaken by i) Distinguished Professor in ISRO ii) Director NIT Manipur, Ex-Officio iii) Joint Secretary, Technical Education, Dept of Higher Education, MHRD iv) Financial Advisor, Dept of Higher Education, MHRD v) Former Vice Chancellor, Manipur University vi) Proprietor, M/S Deva Bamboo & Allied Industries vii) Registrar, NIT Manipur.

### ORGANISATIONAL CHART NIT SIKKIM

The organisational chart of NIT, Sikkim is depicted below:

#### BOARD OF GOVERNORS (NIT Sikkim)

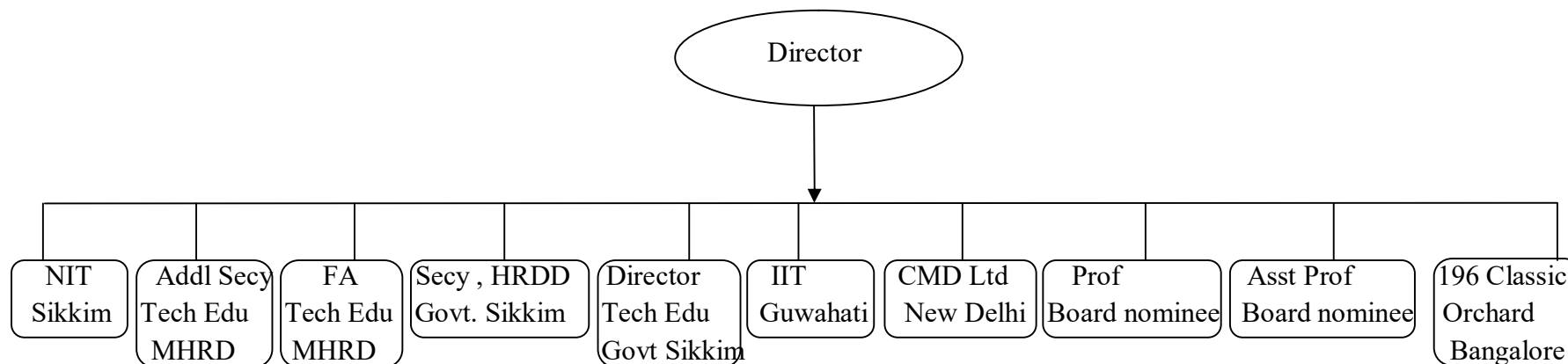


Figure-9: Organisational Chart of Board of Governors NIT, Sikkim

#### Highlight

- ☞ The Board of Governors member comprises of the following members 1) Director as Chairman 2) Director NIT Sikkim 3) Additional Secretary, MHRD 4) Financial Advisor MHRD 5) Principal Secretary, HRDD, Govt of Sikkim 6) Director, Technical Education HRDD, Govt. of Sikkim 7) Director NIT Guwahati 8) CMD, Moving Picture Co. India 9) Prof , Board Nominee 10) Asst Prof, Board Nominee 11) 196, Classic Orchards, Bangalore.

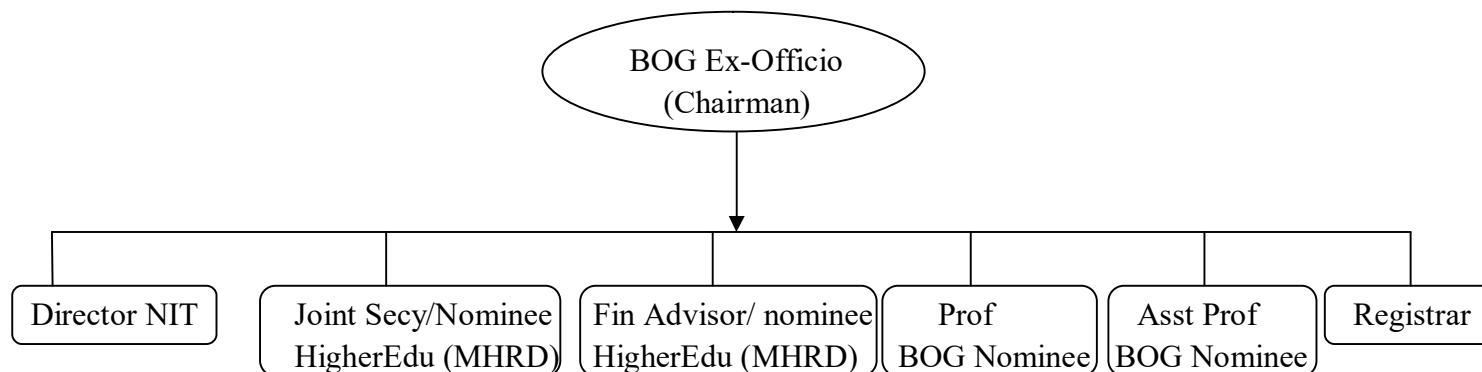
**FINANCE COMMITTEE (NIT Sikkim)**

Figure-10: Organisational Chart of Finance Committee NIT, Sikkim

**Highlight**

- ☞ The Finance Committee are 1) Director NIT Sikkim 2) Joint Secretary, Higher Education, MHRD 3) Financial Advisor, Higher Education, MHRD 4) Prof, Board nominee 5) Asst Prof, Board nominee 6) Registrar, NIT Sikkim.

## SENATE COMMITTEE (NIT Sikkim)

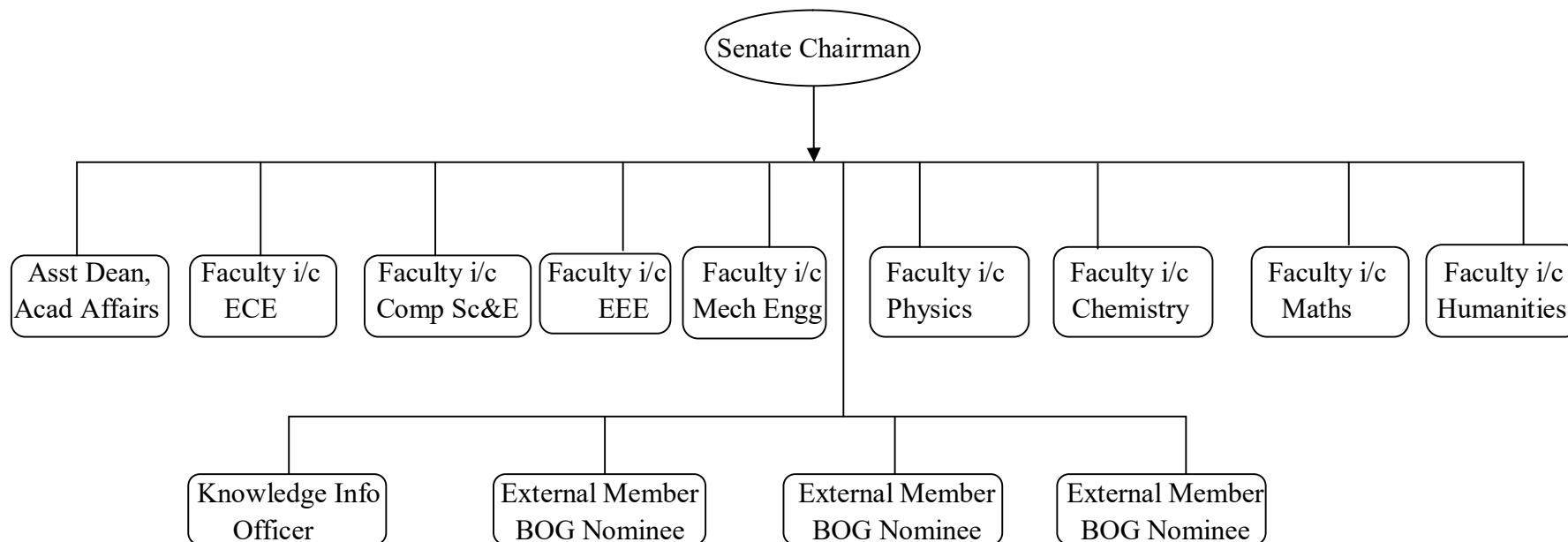


Figure-11: Organisational Chart of Senate Committee NIT, Sikkim

**Highlight**

- ☞ The Senate committee of NIT Sikkim consist of 13(thirteen) members. The committee is chaired by the senate chairman, where each faculty in-charge from each department such as Electronics and Communication Engineering, Computer Science and Engineering, Electrical Electronics Engineering, Mechanical Engineering, Physics, Chemistry, Mathematics and Humanities. Assistant Dean (Academic Affairs) and Knowledge Information Officer are also member of the senate committee. Three external members are nominated by the Board of Governors.

**ORGANISATIONAL CHART NIT MIZORAM**

The organisational chart of NIT, Mizoram is depicted below:

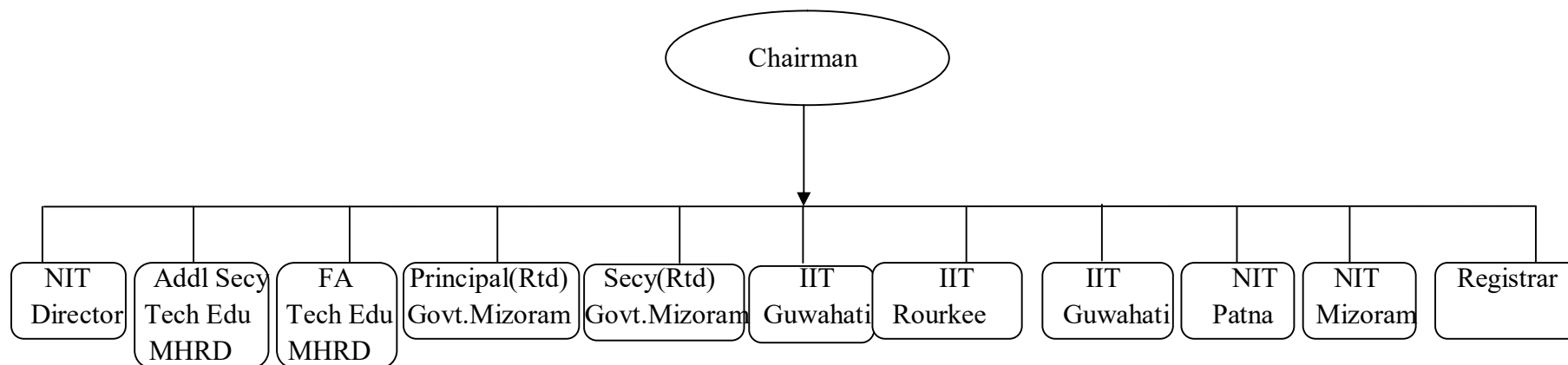
**BOARD OF GOVERNORS (NIT Mizoram)**

Figure-12: Organisational Chart of Board of Governors NIT, Mizoram

**Highlight**

- ☞ The NIT Board of Governors comprised of 1)Chairman 2) Additional Secretary, Technical Education, MHRD 3) Finance Advisor, Higher Education, MHRD 4) Principal (Rtd) , Govt of Mizoram 5) Secretary (Rtd) , Govt of Mizoram 6) Professor, Department of Physics , IIT Guwahati 7) Professor, Department of Mathematics, IIT Rourkee 8) Dean , (R&D), IIT Guwahati 9) Professor Department of Electronic Communication Engineering, NIT Patna 10) Assistant Professor, Department of Physics, NIT Mizoram.



### FINANCE COMMITTEE (NIT Mizoram)

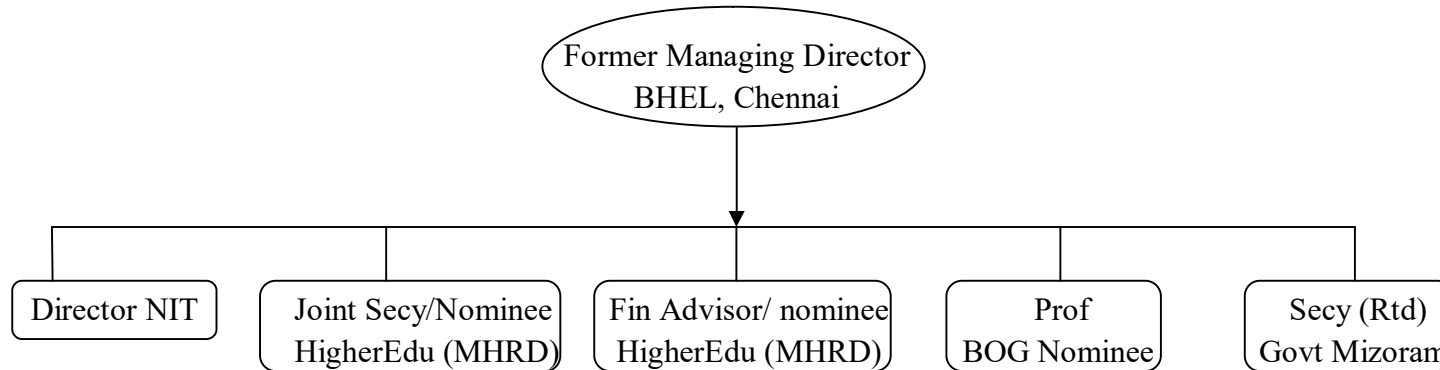


Figure-13: Organisational Chart of Finance Committee NIT, Mizoram

#### Highlight

- ☞ The financial activities of the institute is undertaken by i) Former Managing Director, BHEL as Chairman ii) Director, NIT Mizoram, iii) Joint Secretary or his nominee, Department of Higher Education, MHRD iv) Financial Advisor, Higher Education, MHRD v) Professor, Department of Physics, IIT Guwahati vi) Secretary (Rtd), Govt of Mizoram.

## SENATE COMMITTEE (NIT Mizoram)

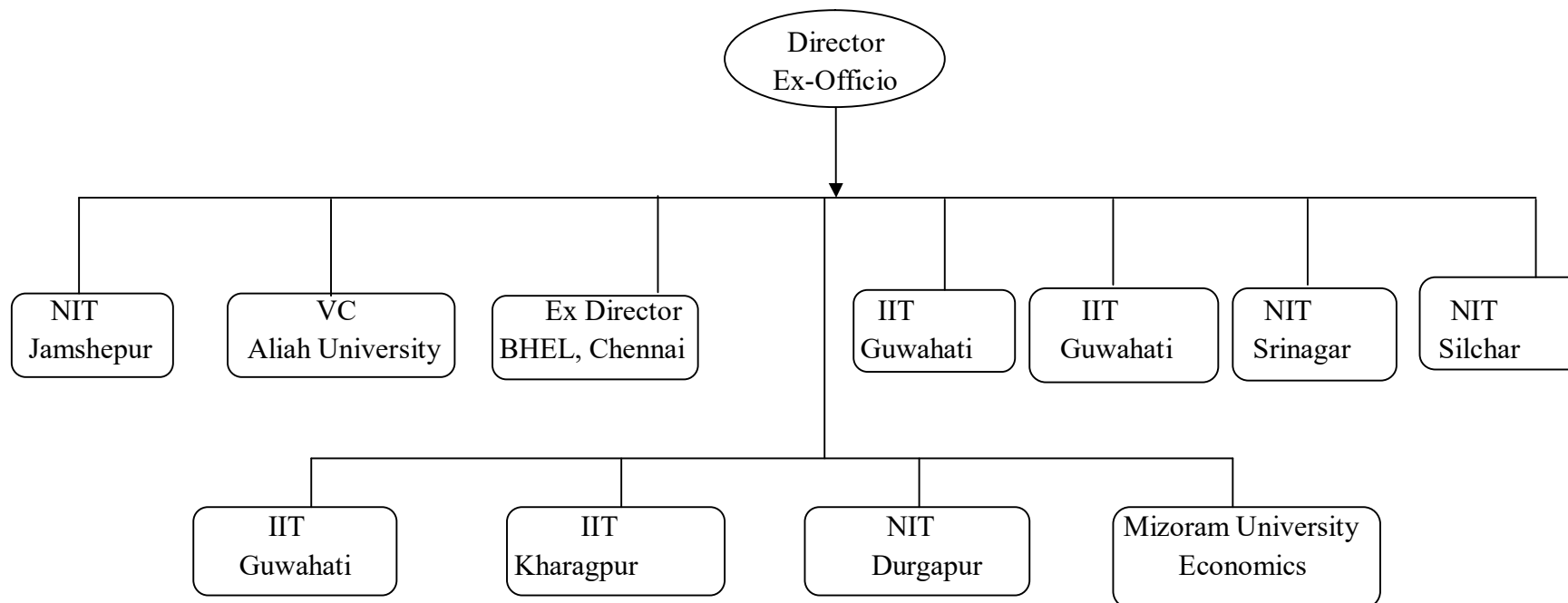


Figure-14: Organisational Chart of Senate Committee NIT, Mizoram

**Highlights**

- ☞ The following are the member of the Senate Committee 1) Director, NIT Mizoram 2) Vice Chancellor, Aliah University 3) Professor, Department of Electronic and Communication Engineering IIT Guwahati 4) Ex- Executive Director, BHEL 5) Professor, Electrical Electronic Engineering, IIT Guwahati 6) Professor , Electronic and Communication Engineering IIT Guwahati 7) Professor, Computer Science and Engineering, IIT Guwahati 8) Professor, Electrical Electronic and Engineering , NIT Silchar 9) Director, NIT Srinagar 10) Professor, Department of Electrical Electronic Engineering, IIT Kharagpur 11) Professor, Department of Economics, Mizoram University 12) Dean (Academic), NIT Durgapur.

### ORGANISATIONAL CHART NIT ARUNACHAL PRADESH

The organisational chart of NIT, Arunachal Pradesh is depicted below:

#### BOARD OF GOVERNORS (NIT Arunachal Pradesh)

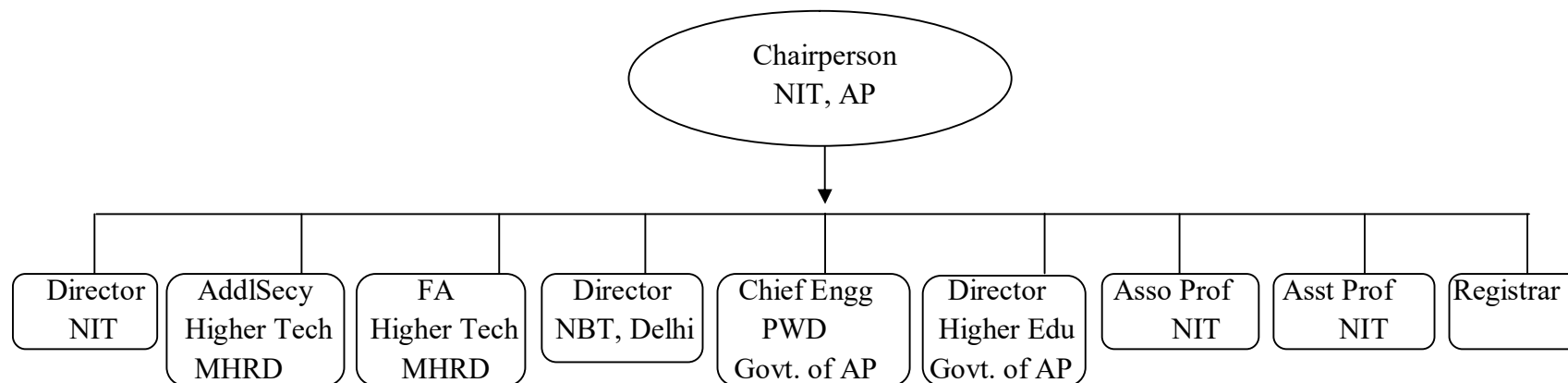


Figure-15: Organisational Chart of Board of Governors NIT, Arunachal Pradesh

#### Highlights

- ☞ The Board of Governors constitute the following members, 1) Director NIT Arunachal Pradesh as Chairperson, 2) Director NIT , Ex-officio 3) Additional Secretary, Department of Higher Education, MHRD, 4) Financial Advisor, Department of Higher Education, MHRD, 5) Director, NBT, Govt of India, 6) Chief Engineer, PWD Govt. of Arunachal Pradesh 7) Director, Higher Education, Govt. of Arunachal Pradesh, 8) Associate Professor, NIT AP, 9) Assistant Professor, NIT AP, 10) Registrar

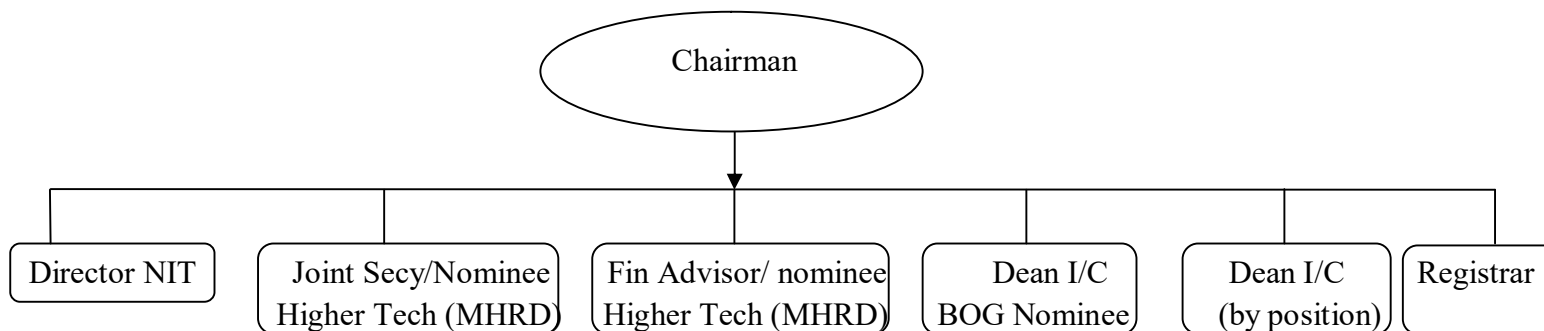
**FINANCE COMMITTEE (NIT Arunachal Pradesh)**

Figure-16: Organisational Chart of Finance Committee NIT, Arunachal Pradesh

**Highlights**

- ☞ The NIT Arunachal Pradesh financial status is look after by the Finance Committee, the members constitute 1) Chairman 2) Director, NIT AP, 3) Joint Secretary, Higher Technical, MHRD 4) Financial Advisor, Higher Technical , MHRD 4) Dean in-charge , BOG Nominee 5) Dean in-charge , BOG Nominee 6) Registrar.

## SENATE COMMITTEE (NIT Arunachal Pradesh)

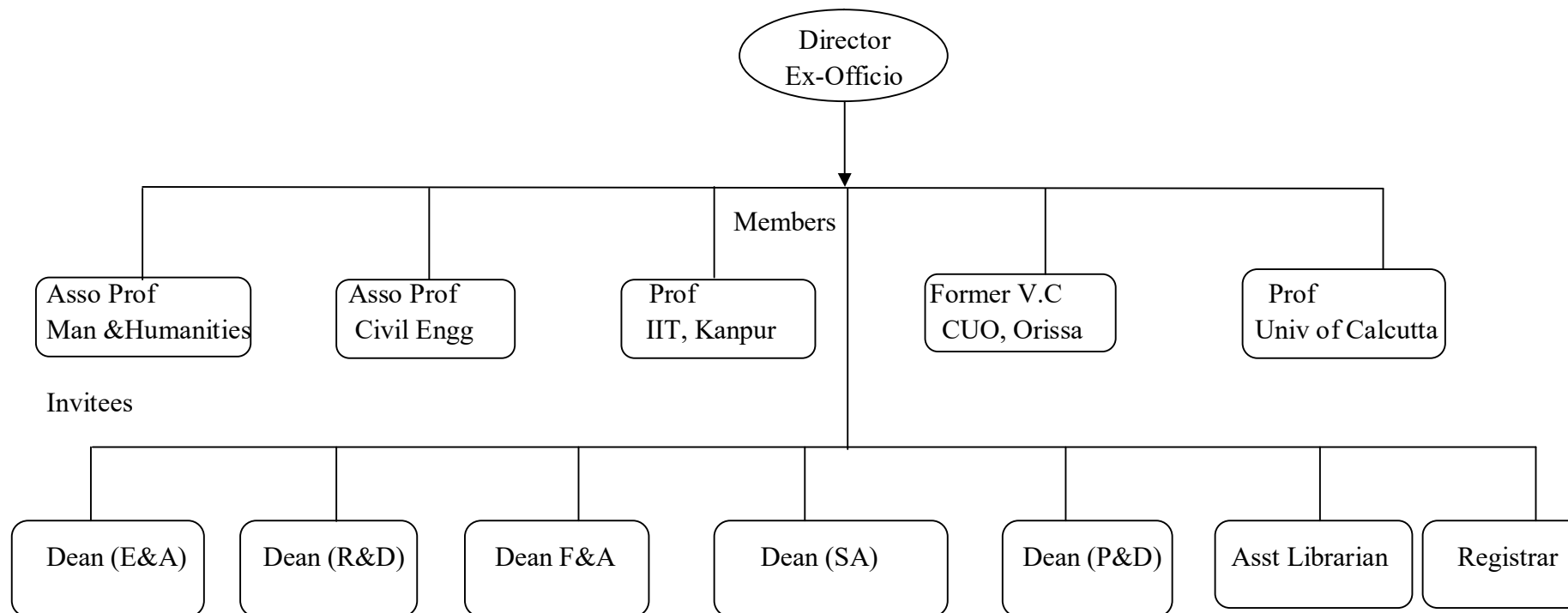


Figure-17: Organisational Chart of Senate Committee NIT, Arunachal Pradesh

**Highlights**

- The Senate Committee is chaired by Director, Ex-officio, the members of the committee are 1) Associate Professor, Department of Management and Humanities, NIT AP 2) Associate Professor, Department of Civil Engineering 3) Professor, IIT Kanpur 4) Former Vice Chancellor, CUO , Orissa, 5) Professor, University of Calcutta, the invitees constitute of each Dean from the department of E&A, R &D, F&A, SA, P&D. Assistant Librarian and Registrar are also invitees in the committee.

**ORGANISATIONAL CHART NIT NAGALAND**

The organisational chart of NIT, Nagaland is depicted in below:

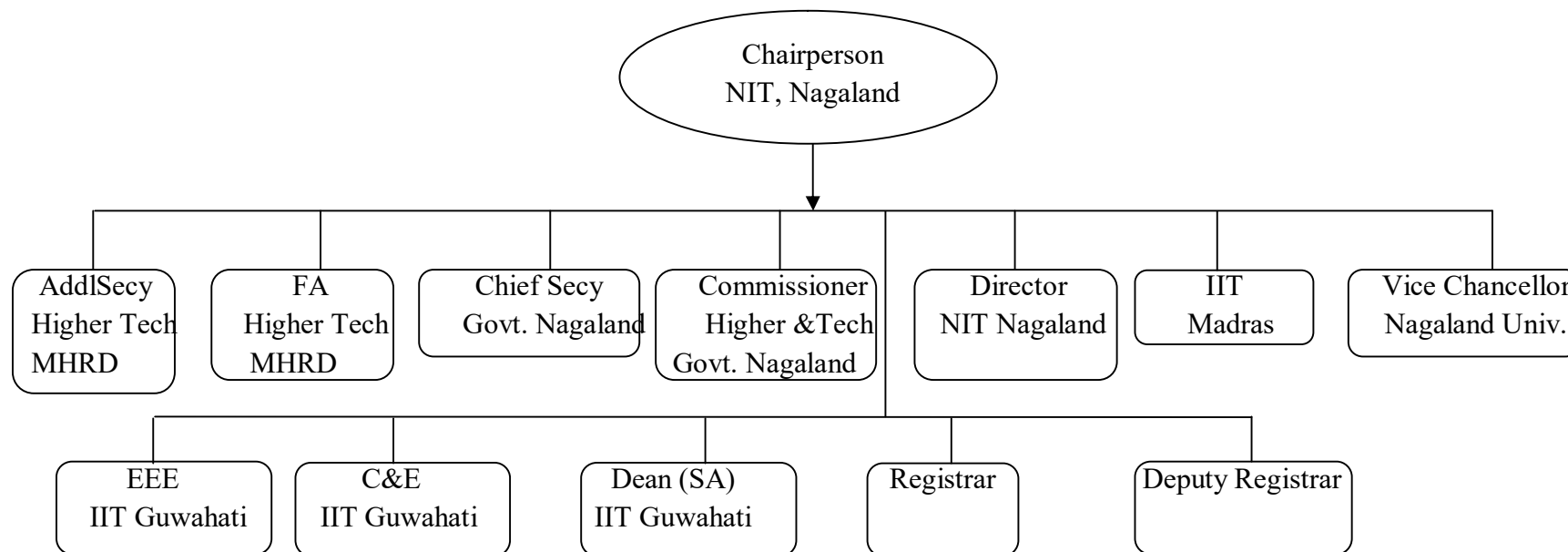
**BOARD OF GOVERNORS (NIT Nagaland)**

Figure-18: Organisational Chart of Board of Governors NIT, Nagaland

**Highlights**

The Board of Governors have the following members 1) Chairperson, NIT Nagaland 2) Additional Secretary, Higher Technical, MHRD 3) Financial Advisor, Higher Technical, MHRD, 4) Chief Secretary, Govt of Nagaland 5) Commissioner, Higher and Technical, Govt of Nagaland 6) Director NIT Nagaland 6) Professor, Department of Electrical Engineering and Director, Central Electronics Centre, IT Madras, 7) Vice Chancellor, Nagaland University, 8) Professor, Department of Electrical Electronic Engineering, IIT Guwahati, 9) Professor, Department of Electrical Electronic Engineering, IIT Guwahati, 10) Professor, Students Affairs, IIT Guwahati, 11) Registrar 12) Deputy Registrar.

### FINANCE COMMITTEE (NIT Nagaland)

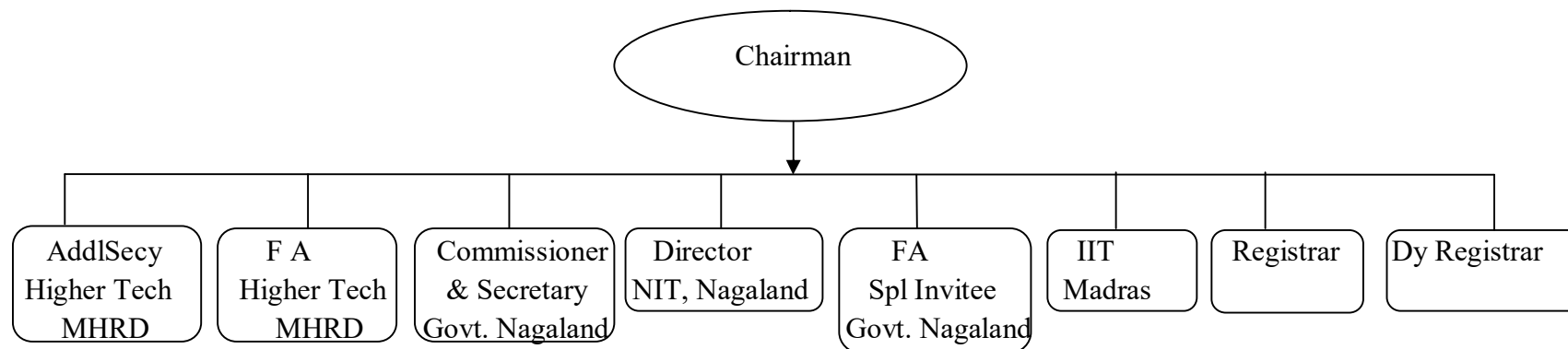


Figure-19: Organisational Chart of Finance Committee NIT, Nagaland

#### Highlights

- ☞ The financial activity is managed by the Finance Committee 1) Director as Chairman, NIT Nagaland 2) Additional Secretary, Higher Technical, MHRD, 3) Financial Advisor, Higher Technical, MHRD 4) Commissioner, Govt. of Nagaland 5) Financial Advisor, Special Invitee, Govt. of Nagaland 6) Professor, IIT Madras 7) Registrar 8) Deputy Registrar.

## SENATE COMMITTEE (NIT Nagaland)

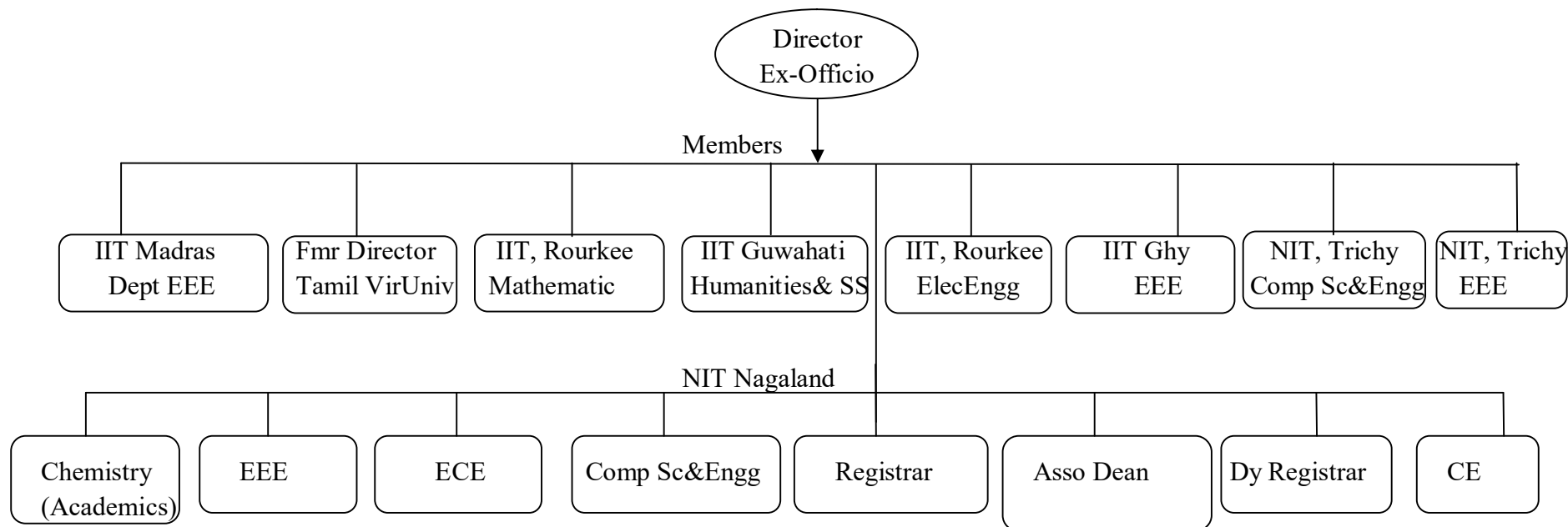


Figure-20: Organisational Chart of Senate Committee NIT, Arunachal Pradesh

**Highlights**

- ☞ The Senate Committee is chaired by the Director, Ex-Officio, the members of the committee are 1) Professor, Department of Electrical Electronic Engineering, IIT Madras 2) Former Director, Tamil Virtual University 3) Professor, Department of Mathematics, IIT Rourkee Professor, Department of Mathematics, IIT Rourkee, 4) Professor, Department of Electrical Engineering, IIT Rourkee 5) Professor, Department of Electrical Electronic Engineering, IIT Guwahati 6) Professor, Department of Computer Science and Engineering, NIT Tiruchirapalli, 7) Professor, Department of Electrical Electronic Engineering, NIT Tiruchirapalli, 8) Professor, Department of Chemistry, NIT Nagaland, 9) Professor, Department of Electrical Electronic Engineering, NIT Nagaland 10) Professor, Department of Electrical Civil Engineering, NIT Nagaland 11) Professor, Department of Computer Science and Engineering, NIT Nagaland, 12) Registrar 13) Associate Dean (Academics) 13) Deputy Registrar 14) Professor, Department of Civil Engineering, NIT Nagaland.



### ORGANISATIONAL CHART NIT SILCHAR

The organisational chart of NIT, Silchar is depicted below:

#### BOARD OF GOVERNORS (NIT Silchar)

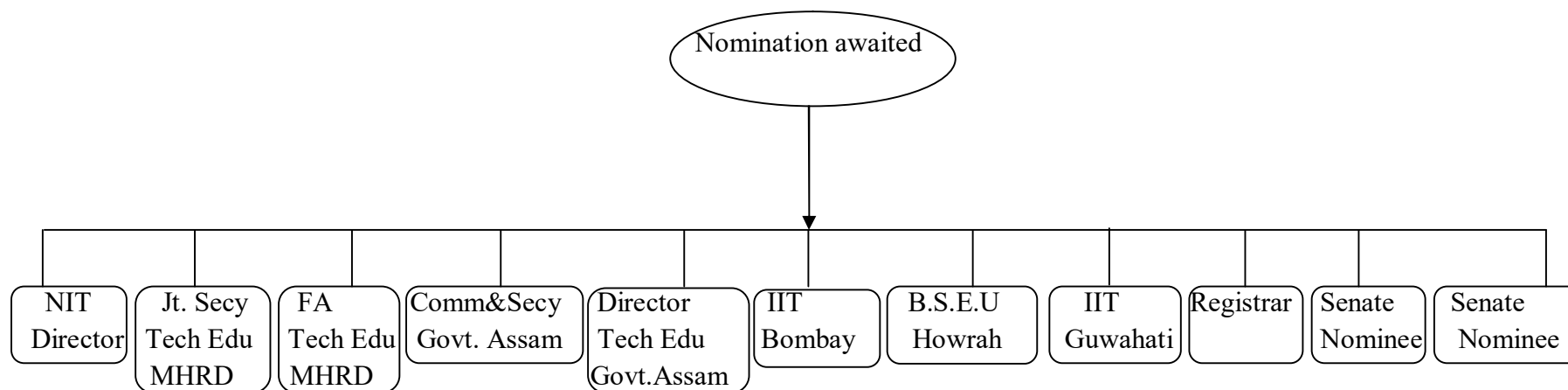


Figure-21: Organisational Chart of Board of Governors NIT, Silchar

#### Highlights

- ☞ The Board of Governors are as follows 1) Director NIT Silchar 2) Joint Secretary, Technical Education, MHRD 3) Financial Advisor , Technical Education, MHRD, 4) Commissioner and Secretary, Govt. of Assam 5) Director, Technical Education, Govt. of Assam, 6) Professor, Department of Mechanical Engineering, IIT Bombay, 7) Professor, Department of CES, B.E.S.U , 8) Dean , Department of Infrastructure Planning and Management, IIT Guwahati 9) Senate Nominee 10) Senate Nominee 11) Registrar.

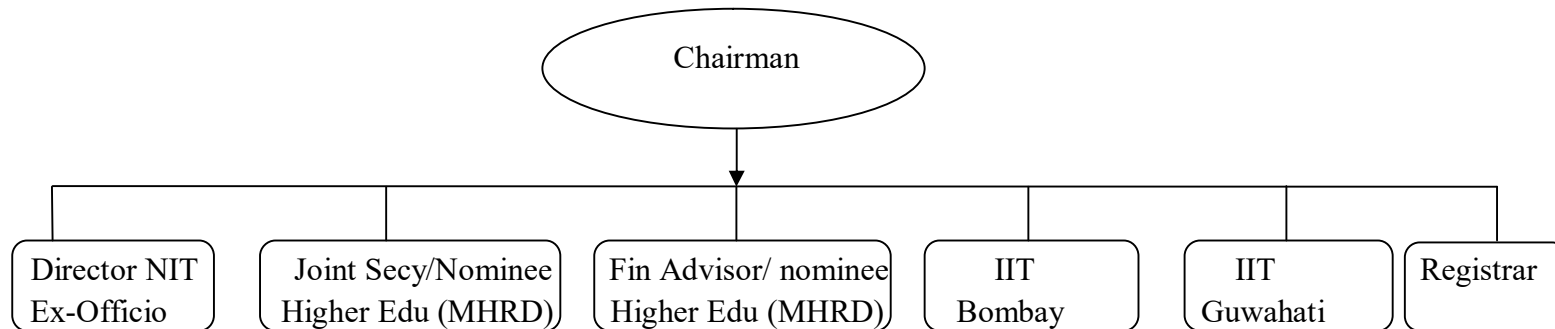
**FINANCE COMMITTEE (NIT Silchar)**

Figure-22: Organisational Chart of Finance Committee NIT, Silchar

**Highlights**

- ☞ The Finance Committee constitute 1) Director 2) Joint Secretary or his nominee, Higher Education, MHRD, 3) Financial Advisor or his nominee, Higher Education, MHRD, 4) Professor, Department of Mechanical Engineering, IIT Bombay, 5) Dean , Department of Infrastructure Planning and Management, IIT Guwahati 6) Registrar.

**SENATE COMMITTEE (NIT Silchar)**

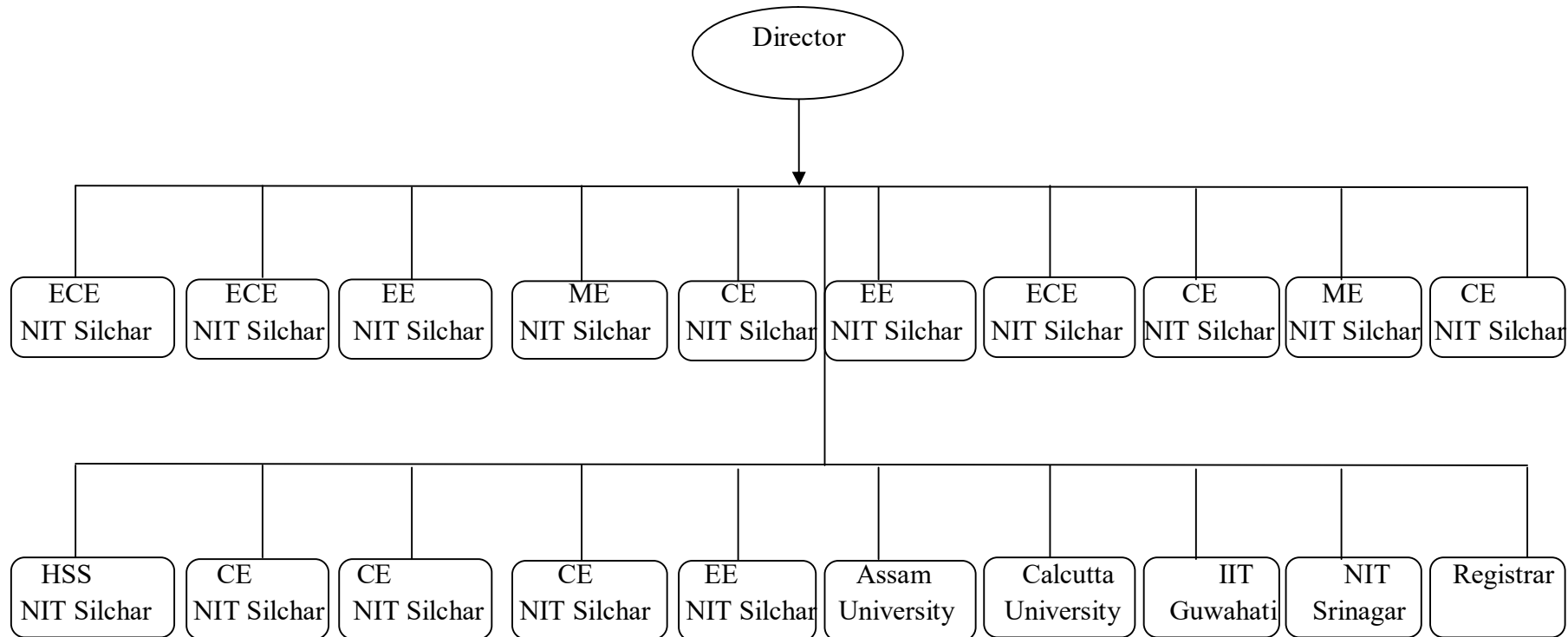


Figure-23: Organisational Chart of Senate Committee NIT, Silchar

**Highlights**

☞ The Senate Committee is constituted by Director (Chairman) , the members are from the following departments such as Electrical Civil Engineering three (3) members, Electrical Engineering three (3) members, Civil Engineering six (6) members, Mechanical Engineering two(2) members, Humanities one (1) . Professors from Assam University, Calcutta University, IIT Guwahati, NIT Srinagar and lastly Registrar.

### **3.1 Introduction**

Library and Information services have been recognized in the society from the days of yore, which however is not restricted to the four walls of the library building rather it has extended its dimension in many fold. It is the resultant effect of the user's need that is stationed outside the library. The unprecedented explosion of information through internet, intranet and other form of electronic sources has resulted for creation of information overload in every sector including library and information service. Therefore, to manage with the situation the Librarians in all academic domain in general and technical institute in particular adapted to the changing environment by adopting new budding techniques to process information generation, collection, processing, storage and dissemination of information to the users community. (Rao, 2002).

The technical education serves as a basic and essential input for the development and strengthening of the industries, economy and the society as a whole and contributes a major share to the overall educational system within the country. Library and information services in higher education institutions have largely developed and are becoming knowledge centres. The technical institute libraries are categorized as special academic libraries and are an important resource of the academic community. These libraries serves the needs of specialized users supporting and supplementing academic programs such as helping its members for self-development, curriculum requirements and promotion of research and development. With the increasing demand for technical personnel, the Regional Engineering College was started in India in 1956 which could churn out graduates with good engineering merits. These seventeen Regional Engineering Colleges were a joint and cooperative enterprise of Central Government and concerned State Government. By the year 1960, Government opened eight (8) more Regional Engineering Colleges, two (2) in each region which was later increased to five (5) more in 1965. In the year 2003, RECs were rechristened as National Institute of Technology (NIT) and taken over fully funded by the Central Government and granted Deemed University. Three (3) more RECs were converted to NIT in 2006 thus, raising the number of NITs to 20. The NIT Act 2007 enacted by the Parliament provides a common framework for all NITs. Recognized as the institute of national importance, the Central Government took major initiatives by establishing many new NITs across the country with almost every state having NIT institute which in turn counts to thirty one (31) NITs at present.

### **3.2 Library and Information Services of NITs in India: A Glance**

The Central Libraries of NITs have well maintained and modernized Central Libraries. With the induction of the competent library staffs, the libraries of NITs used to provide the

extensive service to its clientele. The Central libraries of all NITs remain the centre for all the academic and research programmes and act as the heart of its institution. These libraries facilitate the creation of knowledge through acquisition, organization and dissemination of information and knowledge resources with the provision of both print and digital resources. The library and information services render various services to its users via library websites, digital libraries supported by competent and committed staffs. The central libraries of NITs have different category of collection where some institute have more than 1 lakhs collection while some newly established have around 15000 collections. These collections comprise of books, reports, theses, standards, atlases, patents etc. The non-book materials include microfiche/microfilm, audio, audio-visual, CD/DVD's etc. Book banks are also available where books are loaned for a semester to socially and economically weaker section of the society. The libraries are mostly automated with library software management for housekeeping operations. While some libraries are digitized some also provide intranet facility to its users so that users can access to online journals and other periodicals through AICTE-INDEST consortium, an initiative by the Ministry of Human Resource Development (MHRD). The services of these libraries include reference, consultation, membership, circulation, document delivery, resource sharing, information alert service, book bank, user awareness programme and ICT-enabled web based services. Apart from rendering these services, NIT libraries also organised orientation programme for new students, short duration training programme for various database usage and also organise interactive sessions for both faculty and students so as to familiarized them with various resources and services.

The following services are being provided to the users in NITs in India for enabling the faculties, research scholars to pursue their teaching and research including the students to make excellence in their education. Further, the libraries are also providing adequate support for various projects undertaken by the faculties and nearby industries for sustainable development of economy and production.

### **3.3 Library and Information Services of NITs in North East Region: An Overview**

The North East states of India are fast emerging centre of education in India. Moreover, the eight (8) states as already discussed have witnessed a silent revolution during the last decades. The NIT's of North East institutes have been recently set namely Mizoram, Manipur, Nagaland, Arunachal Pradesh, Sikkim and Meghalaya with Silchar and Agartala being upgraded from Engineering colleges to NIT institute. With its diverse rich cultural heritage, the eight (8) states of North East have always been a great intellectual heritage and are influenced by the

western cultures and educational system. The emergence of prominent educational institutes of NIT's, IIT's and IIM's have been the impact factor of the growing importance of library and information services in North East and paces up with the rest of the nation with the revolution of Information Communication Technology (ICT) among the educational institutes. NIT, Silchar and NIT Agartala are the two old NIT's of North East which were set up in 1967 and 1965 respectively and were first set up as Regional Engineering Colleges which was later transformed and upgraded to NIT in 2002.

With the growth of education prospective in the country, libraries and its services have gained importance in the academic community. The libraries of NIT's have been recently set up except for Silchar and Agartala. NIT Silchar is one of the premier technical institutes in the country and the central library with its modern collections of resources and services supports the academic community. The library is integrated with fully computerized library software and provides e-resource facility to its institutional community. NIT Agartala also being set up with the joint venture of the state Government as Regional Engineering College was upgraded to NIT in 2002 which is fully funded by the Central Government. The central Library of NIT Agartala is equipped with the modern facilities and resources in various forms of print collections as well as electronic resources. The library is automated with the latest library software and is managed with the RFID (Radio Frequency Identification) facility from 2012. Digital Library have been introduced to enhance the academic and research community and for the allotment of the institute library.

Besides these two NIT libraries in North East all other NIT libraries were set up in 2010 where the central government announced the setting up of NIT's in all the remaining states without technical institutes. The NIT's of Mizoram, Manipur, Nagaland, Meghalaya, Arunachal Pradesh and Sikkim were recently established and till today, except for NIT Nagaland, all the other NITs mentioned have not yet occupied their permanent campuses. Being newly established these institutes have certain issues including the temporary renting of academic classroom buildings, administering of the academic functions and many other related issues which every new institutes have to face. Although the NITs of North East are recently situated, these technical institutes have witnessed a tremendous growth within a few years. The institutes are well equipped with modern technology and the library is also one of the important academic components to witness the growing technological aspect in the academic community.

The entire NIT's of North East have Central Library which are well equipped with the latest technology and its services being rendered with the perspective of serving the research and other academic purposes. The libraries are supported with only few staffs that are very dedicated

and hardworking and operate for enhancing the academic quality of the institutes. The services provided by the NIT libraries are highlighted below.

Table -4. Services provided by NIT Libraries in North East region.

Sl. No	Library	OPAC	Web OPAC	Auto Circulation	e-books	e-journals	Audio/Video	Internet	Online Database	email	Doc Delivery	CD ROM/DVD	DLIR	User Orientation
1.	Silchar	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓
2.	Sikkim	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓
3.	Mizoram	✓	×	✓	✓	✓	×	✓	×	×	✓	✓	×	✓
4.	Nagaland	✓	×	✓	✓	✓	×	✓	✓	✓	×	×	×	✓
5.	Meghalaya	×	×	×	✓	✓	×	✓	✓	✓	×	×	×	×
6.	Arunachal	✓	×	✓	✓	✓	×	✓	✓	✓	×	✓	×	✓
7.	Manipur	×	×	×	✓	✓	×	✓	✓	✓	×	×	×	×
8.	Agartala	✓	×	✓	✓	✓	✓	✓	✓	✓	×	✓	×	✓

Abb: ✓-Available, ×- Not available

Source: Questionnaires, NIT, Agartala Annual Report 2015-2016. NIT Nagaland, Annual Report 2015-16, NIT Silchar, Annual Report 2015-16, NIT Manipur, Annual Reports and Audited Accounts 2014-15, NIT Arunachal Pradesh, Annual Report 2014-15, NIT Sikkim, Annual Report 2015-16, Annual Report, Agartala, 2014-15, <http://library-nitsilchar.blogspot.in/>, <https://www.facebook.com/Central-Library-NIT-Silchar-138865726234623/>,

The following are some of the services of the libraries imparted to the users in the respective library of National Institute of Technology, North East India.

### 3.3.1. Circulation Services:

This service offers the public service point by providing lending services to its users and facilitates the return of loans. This section involves the responsibility of issue and return of books and offers maximum services to the library patrons. Most of the NIT libraries have automated their libraries, thus, issue and return of books functions through automated circulation service using barcode technology. Some libraries even use self-check machines where users can issue their books by themselves with a goal to increase self-service machine in order to avoid queues and thus provide more time for the library staff in assisting the users. Reservations of books are also available in circulation where the user can reserve the book for borrowing and information

regarding recall of books is also carried out by this service. The libraries of NITs mainly remain open from 09:30 a.m. to 05:00 p.m. approximately on working day and open on Saturdays for reading and consultations.

### **3.3.2. Reference Service:**

Reference service is an important service facilitated by the libraries where users can access referred information. This service maintains a collection of reference books consisting of dictionaries, encyclopaedias, handbooks, atlases, almanacs, bibliographies etc used for reference to their research assistance and other academic reference information. Reference sections also include bound volume of back issues of journals which are arranged subject wise. These referred books can be used for consultations and reference. The NIT libraries are automated which helps the users as well as the staffs in their management. E-resources are also made available where scholarly articles and journals can be accessed.

### **3.3.3. Document Delivery Service:**

Document Delivery is one of the important components in information supply. The main service of document delivery is delivering of requested books to the users. Users may request a particular book which may not be available in the library but are available in other library. If such is the case, then the user requested the book for delivery which may be sent or given a duplicated copy according to the agreement between the libraries. Document delivery service can be implemented only when more than two libraries agreed to share their resources through union catalogue which is made available in each library. The requested information is delivered to the user on the condition that they are used only for their academic and research purpose and not for commercial gains.

### **3.3.4. Internet Service:**

The central libraries of NITs are well equipped with ICT technology where users can access the e-resources and other information on the World Wide Web made available through internet service. Some institute provide intranet services within their campus for database search of the library holdings and for accessing of consortium and other information. Internet service is not merely a source of information, but it is also a means of communication, where users can interact with others thus making use of emails, chats and through social media which may be useful to the user in collecting information.



### **3.3.5. Information Services:**

Information service provides a digital content which are available through the Digital Library and can be accessed by the academic community through the institute's Local Area Network (LAN) or the intranet within the campus. It is the set of services that the institute offers to its member community, the output of the institution for the management and dissemination of digital materials. These services help with the referencing and assistance from subject based information to the users.

### **3.3.6. OPAC and Web OPAC:**

OPAC- Online Public Access Catalogue is simple an online bibliographic data of the library collections made available to the users for access through the library software mechanism. Web OPAC are also having the same aspects but can be accessed anywhere in the world with the help of internet. OPAC can be used through LAN/intranet provided by the institution while Web OPAC can be accessed worldwide. These services are one of the important components of the library services as it helps users in searching, accessing and browsing of the library resources easily.

### **3.3.7. Periodical Services:**

This section subscribes various journals, magazines and newspaper which provide the current source of information to the user community. The periodical collection which is formed and developed by means of purchasing, donation and exchange is displayed in an open shelf displaying the current issues and newspapers. This service helps the user to be aware of the current information around the world. This service may also include current Awareness Service (CAS) and Selective Dissemination of Information (SDI) on the demand of its users.

### **3.3.8. Reprography service:**

This service provides the facility for photocopying of documents available in the library. However, it may be provided on payment basis with subsidy rate subject to copyright restrictions. This service broadly offers lamination, spiral binding, printing documents, Xerox, scanning and others etc.

### **3.3.9. Book Bank:**

This service is available mostly among the technical libraries. It helps students belonging to economically and socially weaker sections of the society. Preferences are given to Scheduled

Tribe and Scheduled Caste students in the institute. This service allows the students to borrow books depending on the rules of the institute to a period of one semester upon the availability and also has separate collections. However, these books shall be returned immediately as reservations can be made by other users. The main aim of this service is to help the needy meritorious students.

#### **3.3.10. Online Databases:**

Online Database provides access to resources across a wide spectrum of topics and subject areas. It also provides access to publish information sources online such as academic journal articles, conference proceedings, reports, Government publications, scholarly magazines, newspapers, encyclopaedias, journals and other resources. Online database is an electronic catalogue or index containing information about published items where library subscribes to many databases so as to access these resources.

#### **3.3.11. Awareness and Training:**

The central library's also takes an active part in organizing orientation programme for the benefit of new students where they are given training on how to use the library. These students are taken on a tour around the library to familiarize them with various resources and services available to them. The libraries of NITs also organize various workshops and training on new products as well as training and conferences for library and information professionals to update their knowledge skills.

#### **3.3.12 E-journals:**

Electronic journals or e-journals are an electronic serials which can be accessed via electronic transmission. These journals originated mostly as print journals subsequently having an electronic version but some journals are born digital and are solely published on the web in a digitized manner and are called online journals. With the growth and development of the internet, the electronic journals have increased the digital publications and open the door for open access initiatives for the benefit of the academic research community.

#### **3.3.13 E-books:**

E-books are electronic books which are made available in a digital form. E-books are the electronic version of printed books which consist of text, images etc. and can also be accessed online. E-books are also used for commercially produced devices dedicated to the e-readers. The concept of e-books is to provide multiple uses to the readers at a time and reduce the physical resources in the library. E-books have also changed the library service scenario in the academic

community enabling them to align with the e-learning initiatives and other technological advancement for the research and other academic purposes.

#### **3.3.14 Digital Library:**

Digital library are a collection of digitized documents made available in the form of CD/DVD or other electronic media and are also made available through online. Digital Libraries can be accessed online with full text documents and their associated images. Digital library in library services refers to the organised collection of digital objects for access, retrieval and sharing of collections with other libraries through networking. It is also the process of preserving the library collections in digitized form in order to ensure usability, durability and intellectual integrity of the information contained therein.

#### **3.3.15 Current Awareness Service:**

Current Awareness Service is a service that keeps the users with the latest acquisition of books in the library. It keeps users well informed to their particular area of interest. It is a service where the users get information such as latest publications and information sources of current literature. Current awareness service involves new and innovative ideas of retrieving information with updated knowledge. It is an alert service for specialist towards the latest developments and new publications acquired by the library.

### **3.4 Central Library NIT Agartala**

The Central Library NIT Agartala extends its support by providing multiple services for the academic development of the research scholars, students and faculties. It ensures for better administration and services to the clientele through codified rules and regulations for the library to support the academic activities of the institute. The library keeps open for 8 hours in weekdays including Saturday and Sundays for 3 hours. The library also ensures better services which could be visualised that it has developed a digital library which adequately supports teaching, learning and research. The library is equipped with modern techniques like RFID (Radio Frequency Identification) where the users are facilitated with self-check in and self-check-in including OPAC (Online Public Access Catalogue) service. The library provides extensive services to access the bibliographic information through Local Area Network (LAN). The library is taking major initiatives to commence with Institutional Repository and Inter-library loan services to its users for wider academic benefits where the users can access through online.

National Digital Library (NDL) is a major initiative of Ministry of Human Resource Development (MHRD) is in the doorstep of the library services. For this project a good number of registered users of NIT Agartala browse resources from NDL portal covering multiple subject

domains. With regard to resources available in the library, it takes the major foreign user centric collection development. The collection of the library includes books, PhD theses, pamphlets, reports, periodicals, CD etc.

The library facilitates services to the users of the institute through Digital Library which has a sound collection of online e-databases, CD-ROM database, video courses and other visual materials which supplement potentially to enhance the research activities including teaching and learning. It is being carried out through a vibrant and dedicated professional staffs of the library that supports the authority to implement new type of services to the clientele.

While discussing about the manpower position in the library, it is equipped with 17 staffs which includes professional, semi-professional, non-professional, temporary and contractual. The library however is venturing new plans for effective dissemination of services to the clientele. The future plans as suggested by the authorities include:

- Full computerization of NITA library.
- Starting documentation work and services on different subjects especially in science and engineering.
- Providing Inter Library Loan facility.
- Opening of Non book section.
- Starting a binding section in the library.
- Launching user-education programme.

### **3.5 Central Library NIT Mizoram**

The Central Library of NIT Mizoram which acts as the hub centre of knowledge extends its services in multiple ways to accelerate the academic activities of the users of the institute. It provides adequate information resources in shape of books both in traditional and electronic along with print journals, electronic journals to the students, research scholars and faculties of the institute. Although the library is functioning in rented building in the absence of the permanent building encounters with space problem. However, it does not compromise to the service provided to the users. The space constraints however, results to collections of limited reference books which are equally important as a major source of information for research and other academic progress.

The library provides intranet facilities to access the e-resources to its users through internal links. The internal links provided by the library comes to 6 which include the e-journals

and Indian Statistics. The access to these resources on intranet is made to the users through a specific IP address provided to the users.

Apart from these e-journals the library also subscribes e-books as already mentioned in the table which includes textbooks, reference, newspapers and magazines which are also provided to the users through intranet. The users, therefore, access a good number of e-resources to support their teaching, learning and research. The library equally gives importance to subscribe newspapers in print form along with the employment news to keep the users aware for job opportunities and career oriented services. Moreover, the current events like India Today and information with regard to the Sports through Sports Star are also being subscribed by the library. Therefore, it can be judged from the explanation that the library is in the fore front of imparting services to the users for academic development. The Central Library of NIT Mizoram is a member of INDEST and NIT Libraries Consortium which allows the users to access mammoth literature in e-forms which substantially supports their teaching, learning and research work. To equip with resource strength to the users, the library also subscribes full-text database of IEEE online, Springer Link, ASCE and J-Gate which enhance the research work of the academic fraternities.

The other services provided by the Central Library NIT Mizoram includes automated catalogue, automated classification, CD/DVD and internet including web based document delivery services which are unique and beneficial for the users community of NIT.

The library is also equipped with 1 skilled professional staff, 1 temporary staff and 1 contractual staff to accelerate the services. Even if the staff position is very less still their involvement in the library services seems to be commendable in view of providing various services. To support the academic activities, the library in the weekdays functions 8 hours and it also opens during the holidays and vacations which are restricted only to the fraternities of NIT Mizoram.

With regards to the library automation, the library adopts an integrated library management software package known as LIBMAN. The LIBMAN software developed by Datapro Consultancy Services, Pune allows creation of multiple databases of books and other housekeeping operations and it is integrated with barcodes, RFID and biometric Identification technologies, and it supports powerful OPAC system. The software also supports with Management Information System Reports Generation like Standard Reports, User Define Reports and Cardex for serial control including generating the reminders. This also supports the dynamic location tagging and stock verification. ([www.barcode4u.com](http://www.barcode4u.com) )

### **3.6 Central Library NIT Nagaland**

The Central Library of Nagaland equally with other NIT libraries plays a crucial role in accelerating the academic ventures irrespective of the users like students, research scholars and faculties. It creates a conducive environment to make the library accessible for each group of communities. The central library extensively takes major in collection of knowledge resources for all type of department prevailing in the institute and allows on demand access to the intellectual resources not only to the community of the institute but also to the people for greater academic benefit. The library facilitates resource support and provides value added service to the user community. The Central Library, further adopts fully computerized integrated campus software known as 'ikollege' which enables the library to undertake various activities and operations and as it is compatible with RFID technology, the library tags entire collections with the software which benefits the users in multiple ways. The ikollege campus management solution software not only facilitates user friendly search in identifying the books, but also enables the students and the staffs as well to search the availability of the books through online, new stocks and books issued by the library manager and generating the real time reports about the availability issue and loss of books etc. ([www.ikollege.com](http://www.ikollege.com)). Thus, the ikollege library modules extensively support the library operations in an effective way.

The prime motto of the institute is to support and strengthen the institute for value added learning and research in the field of engineering and technology. The other vision of the library includes developing and providing knowledge based intellectual information resources to foster and access of knowledge to all communities and creating a centre of national importance to encourage the users community and professional development of the technocrats. Housed in a permanent building the central library provides amenities to the users to access the library resources through various platforms. Discussing about the library staff it has 1 professional staff and 2 non-professional staffs. In spite of having limited staff the library could establish a centre of excellence due to dedication of the staffs.

The library resource is one of the important parameters which attract the user community of various disciplines. To mention the central library has a collection development of more than 10,000 printed books and more than 3500 e-books. It is also equipped with 2000 e-journals along with more than 600 CD-ROM and educational videos.

The library resources accommodated by the institute's central library extensively provides access for maximum use of the resources. The resources of the library includes the subject areas like engineering, technology, basic sciences, management, economic, social sciences and humanities including textbooks and reference books. The e-resources of the library

with regard to e-books cover the discipline like electrical, electronic communication, civil, mechanical and computer science. Including the above e-resources the library subscribes to J-Gate Plus for wider benefit of the academicians. To strengthen the quality of teaching and research the library subscribes to the full text database through Science Direct, IEEE Online, Springer Link, ASME, ASCE etc. Moreover, the library facilitates network based services for automated cataloguing, automated circulation, access to online databases, standards, internet, email and e-learning. It however, provides OPAC services to the users. The entire campus is Wi-Fi connected leading thereby access to e-resources round the clock which excel the learning and research.

The central library also facilitates the mobile tutor access for the B.Tech students through SWAYAM (Study Web of Active-Learning for Young Aspiring Minds) which is a web-based instrument for self-actualisation. It is a programme initiated by Government of India for achieving 3 cardinal principles of educational policy i.e., access, equity and quality. The users can access these programme through their smart mobiles.

### **3.7 Central Library NIT Meghalaya**

The NIT Meghalaya is located in a temporary campus to cater the needs of the users of the institute's students, research scholars and faculties. It not only emphasizes on collection management of the resources but also puts stress on the quality development in technical education in the North East Region. The Central Library has developed its resource collection in the field of engineering, technology, sciences, humanities, social sciences and management to excel the academic performances of the users.

The Central Library is supported by two (2) dedicated and committed professional staffs, semi-professional and 2 contractual who are tuned to the technology. As a result, many activities of the library are being operated through technology for enhancing the academic quality in the institute.

With regard to resource development the library has collected more than 15000 resources in various disciplines along with journals in electronic forms for more than 1400 which facilitate the users to access the resources. It restricts its services for 10 hours physically and also doesn't during the holidays and vacation. However, it opens on Saturday for 3(three) hours for reading and consultations of the library by the users. It provides the services through the document only. The library further takes major to aware the users the new arrival books on their website and thus, the user is aware of the new arrival of document in the library. To promote academic excellence, the library takes the major of subscribing to INDEST Consortium and E-Shodh

Sindhu leading thereby the availability flood of e-resources in different disciplines. Database which is equally important to promote teaching, research and learning are being subscribed by the library for the users benefit. The full-text database from the international publishers subscribed by the library includes Science Direct, IEEE Online, ACM Digital Library, Springer Link, ASME, ASCE and Maths Scinet.

The library however, puts restrictions to the users on internet to access the e-books but allowed access through username and password. This is done to identify the potential uses of the institute. The library uses the open source digital library software known as KOHA but it is not yet fully automated. However, some of the sections of the library are automated and process is going on.

The Central Library equally gives importance to foster new knowledge in other interested areas by the students, researchers and academicians and thus, has taken initiatives to provide an external link to National Digital Library sponsored by MHRD, Government of India and coordinated by IIT, Kharagpur.

### **3.8 Central Library NIT Arunachal Pradesh**

The Central Library of NIT Arunachal Pradesh effectively supports the students, research scholar and faculties with rich resource collection in various discipline such as basic and applied sciences, chemical and biotechnology, civil engineering, electronic and computer science, mechanical engineering and management and humanities. The primary aim of the library is to support the institute for achieving academic excellence in the technical education and to support the researchers with rich knowledge in different field s of their study to combat the growing need of technological profession in India and also the world. It is considered to be the knowledge centre for each communication of the institute.

The Central Library of the institute is supported with two (2) committed professional staff, two (2) non-professional staffs, two (2) temporary staff and one (1) contractual staff who are abreast with the technical knowledge and also the computer and networking knowledge. Their creative thoughts enrich the knowledge dimensions of the users as they provide technological support services to the users. Due to the strategic location of the institute the library apart from providing physical services for eight (8) hours in weekdays also provide services on Saturdays. It however, provides academic support to the users through both documentation and electronic forms.

While discussing about the library resources, it has more than 20,000 collection and more than 900 journals both traditional and electronic which boost the user for achieving adequate



resources for academic development. The library, however, uses LIBSYS which is integrated library software management software and supports the web services including Library 2.0 and Web 2.0. The library is integrated with the institute website which can be accessed by the users. The library is well connected with LAN so that the users conveniently access the e-resources for academic benefit. To make the library rich collection of e-resources efforts have been initiated to subscribe to the full text database from the international agency like Science Direct, IEEE, ASME, ASCE and bibliographic database like Chemical abstract. It also facilitates the user to access the central government project like National Digital Library which substantially added value to the users to enrich their knowledge and academic benefits. To highlight the different services provided to the users includes automated cataloguing, automated circulation, access to online database, E-CAS, CD-ROM, standards, specifications, email, e-learning, e-publishing and other support based services on electronic forms. These services widely give the benefit to the users of the institution for various purposes. The best practices adopted and implemented by Central Library of NIT Arunachal Pradesh is the barcode technology through which every details of the documents are displayed apart from the convenient form for stock verification.

### **3.9 Central Library NIT Sikkim**

Designated as Knowledge and Information Centre, the Central Library of NIT Sikkim is functioning in a separate campus, primarily to provide scholarly information and research support to attain the academic objectives of the institute. The library provides a convenient and feasible access to all the academic communities for enhancing learning pedagogy of the users through both traditional and electronic form. The Knowledge information Centre of the institute is a hub centre to make resources amendable through multiple channels.

The library has a sound collection development which constitutes more than 8000 print resources, more than 1200 e-books and 26 print journals including a subscription to more than 3500 e-journals. Such a wide range of resources also is coupled with a collection of more than 600 CD/DVD and a good length of NPTEL courseware collection. It can be stated that NPTEL i.e. National Programme on Technical Enhanced Learning is a project funded by MHRD to provide e-learning through online, web and video courses in Science and Technology, engineering, humanities and management which is a joint ventures of 7 IIT's and IISc Bangalore for widest academic benefits.

The library is equipped with two (2) professional staff only who are competent enough to promote various library services using the technology. The committed and dedicated staffs of Knowledge Information Centre (KIC) take ahead the motive of the institute by providing

substantial resources to all the academic communities and emphasize more to the research communities. The working hours of the library is for eight (8) hours 30 minutes in weekdays which however opens on holidays and vacation to support the cause of information need among the user community. The best practice adopted by the KIC includes:

- ✓ Providing kindle e-books to the readers by using a server-client access system.
- ✓ Cashless transaction for collection of library dues.
- ✓ Web 2.0 services.

Thus, KIC of the institute acts as a pillar of information resources which disseminate traditional book, e-books, e-journals, and consortium based resources etc to all branches of engineering and technology including humanities and management.

The library is using web enabled software known as LIBSYS where all the activities of the library are undertaken. Concerning to the collection of e-resources the library gets access to E-Shodh Sindhu and full text databases from Science Direct, Nature and along with bibliographic database of Chemical Abstract. Mention may be made that all the e-resources subscribed by the KIC is from institutes fund only.

The KIC provides multi-dimensional services which are accessible round the clock and the services which include EDI, Automated Cataloguing, Automated Circulation, Virtual Reference, Online databases, Multi Media databases, Standards, Internet, email, e-learning and e-publishing. Thus, it contributes substantially to promote teaching, learning and research activities. It however, provides online web pages, email, telephone and message services to the users.

### **3.10 Central Library NIT Silchar**

Housed in a permanent building the Central Library of NIT Silchar caters to the need of engineering students a qualitative approach of resources to foster teaching, learning and research. The library as per the demands of the user's community provides adequate resources and services to achieve excellence in teaching, learning and research. Equipped with modern technological infrastructure, the library provides right impetus for the intellectual growth of students, teachers and research scholars in their respective discipline. The library is fully computerized with an integrated system connected to the campus network and provides numerous e-resources to the communities of the institute. Library is accessible through its own website which not only drags the users to visit the library but also facilitates multiple services through the website. The network of the institute allows access to the users the entire databases of the library collection including CD-ROM databases and online databases. It is a library which is accessible round the clock and extensively supports with services the learners through various

methods such as documentary, electronic and media. Compatible with Library 2.0 and Web 2.0, the LIBSYS software is being used in the Central Library through which the total administrations of the library including the services are controlled.

The recent visit of the scholar to the Central Library visualised that the library is taking effort to make a digital library through open source software known as KOHA and effort are being initiated to transfer the databases of the library from LIBSYS to KOHA. It may be mentioned that KOHA happens to be digital library software which is compatible with both Library 2.0 and Web 2.0 to provide a network based library services KOHA is the benefitting software which not only can be used for various library purposes but also helps in supports the Institutional Repository. However, the Central Library of NIT Silchar is also working on DSpace software to develop the Institutional Repository. The other initiative of the library includes:

- ✓ Provides quality services to the users and disseminate technical knowledge.
- ✓ Bringing about cooperation among library and information centre in North East India through resource sharing.
- ✓ Developing inter-institute links within the country to facilitate exchange of information resources.
- ✓ Developing a digital library through collection of information available across the globe on internet for wide dissemination both in the institute and the North East Region as a whole.
- ✓ Integrating with other Digital Library which is set up in the national and international field with a purpose to minimise recurring cost of the journal and other print media.

The Central Library is also taking initiatives for library volunteer programme, separate North East collection and career counselling desk. To make more amenable to the library resources and other resources externally available, the Central Library through the website provides internal links, external links and links where the users come through wide range of resources which substantially help not only to developed their academic works but also creating an avenue for good technocrats. Thus, the Central Library potentially helps the users for sustainable development of education and research who contribute to the national building.

Apart from adequate library resources both in print and electronic forms, the library also subscribes to INDEST Consortium and NIT Consortia for wider academic benefits in various branches of engineering and technology which provide adequate educational supports and resources to excel the academic achievements.

The full text database available in the library includes Science Direct, ACM Digital Library, Proquest, ASME, ASCE, Nature, Standards and JGate including MathSciNet which acts as a

catalyst to the user's community not only to gain knowledge but also add substantial value for research.

Mention may be made that the library has extensive collection development in various branches of technology which comes to more than 95000 and 120 print journals including more than 10000 online journals. The library is also a member of DELNET (Developing Library Network) for inter-library loan. The Central Library to promote quality education provides network based services through electronic data interchange, E-CAS, ETD, Multimedia database and above all internet through the users conveniently exchange their academic matters through email. E-learning and e-publishing is another prominent area of the library services apart from this, the library also facilitates services to the users through OPAC and Web OPAC.

The manpower of the library constitutes professional, semi-professional and non-professional out of which four(4) professional are inducted having a sound knowledge in computer operations, software handling and two(2) semi-professional extend, help extensively to support the cause of services of the library. The library is also having seven (7) professional and four(4) MR (muster roll) on contract basis. Therefore with such professional hands the library has created a milestone in the national field. The opening hours of the library also matters very much where the users commensally access the library in weekdays it opens for nine(9) hours and also opens during holidays and vacation.

### **3.11 Central Library NIT Manipur**

The Central Library Manipur is also a premier information resource to fulfil the demands of the user's community. It supports extensively to the study, teaching, research and development programme of the institute with a huge collection development like more than 24000 books and 7 print journals including more than 2207 e-books, the Central Library provides extensive services to the user's communities in the institute. The Central Library also has developed a digital library of ACM, IEEE and ASME which add value for the students, research scholars and teaching communities.

The library uses SOUL software for various operation of the library and the library institutes a website of its own which provides internal links, external link and sponsored links to the users for wider academic benefit. It has developed a campus network to access the e-resources.

The library is a member of INDEST Consortium and full text database services are provided through Science Direct, Springer Link, Pearson, Wiley, ASME, ASCE, and IEEE. The

other network services provided by the library includes ETI (electronic data interchange), Online databases, Internet, Email, Video and Teleconference, Fax and E-learning.

With manpower of 6 professional, two (2) non-professionals, and five (5) temporary and three (3) contractual staffs the library extensively demonstrates its services and adopts best practise in the following areas:

- ✓ Awareness of multi-dimensional services to the users.
- ✓ Usage of library services.
- ✓ Automation and use of technology.
- ✓ Enhancement of collection in different formats.
- ✓ Library book exhibition.
- ✓ E-learning programme.
- ✓ Internet facilities.
- ✓ LAN and online service training.

Thus, the library adequately supports teaching, learning and research programmes of the institute by developing a need-based collection development and adequate infrastructure to support the academic communities for various disciplines prevailing in the institute.

### 3.12 Overall view of Library Resources in NITs North-East

Table 5: Library resources available in NITs of North East

S.N	Description of Resources	NITS	NITSk	NITM	NITMi	NITN	NITA	NITAg	NITMe
1.	Books	96,683	8091	24285	8335	10,000	20212	84350	15000
2.	e-books	130000	300	9479	1500	-	826	62036	149
3.	e-journals	10,000	3500	2207	6	2000	906	14084	1400+
4.	Print Journals	120	26	7	3	-	30	7	-
5.	Theses	92	-	-	-	-	-	37	-
6.	Dissertations	425	-	-	-	-	-	59	-
7.	Pamphlets/Report	399	-	-	-	-	-	10	-
8.	Bound Volumes	5468	-	19315	-	-	-	-	-
9.	Magazines	-	-	22	-	-	-	-	6
10.	Newspaper	-	7	8	-	-	-	-	-
11.	CD-ROMs/DVD	4297	600	-	-	600	-	612	7

Abb. NITS-Silchar, NITSk-Sikkim, NITM-Manipur, NITMi-Mizoram, NITN-Nagaland, NITA-Arunachal Pradesh, NITAg-Agartala, NITMe-Meghalaya.

Source: NIT, Agartala Annual Report 2015-2016. NIT Nagaland, Annual Report 2015-16, NIT Silchar, Annual Report 2015-16, NIT Manipur, Annual Reports and Audited Accounts 2014-15, NIT Arunachal Pradesh, Annual Report 2014-15, NIT Sikkim, Annual Report 2015-16, Annual Report, Agartala, 2014-15, <http://library-nitsilchar.blogspot.in/>, <https://www.facebook.com/Central-Library-NIT-Silchar-138865726234623/>

### **3.13 Conclusion**

The central libraries of the NIT's in North East Region cater to the needs of the technical institute through their services. With the intention of promoting the technical manpower within the country the MHRD has taken various initiatives and promoting the existing regional engineering colleges to NITs and establishing new NITs across the country. The libraries play a vital role in the technical institute by supporting and supplementing academic and research development. The libraries of the NITs in North East facilitate the creation of knowledge through various services rendered to the users. The collections of these libraries comprises of many print materials including books, these, dissertations, journals , bound volumes etc. and also electronic resources such as electronic journals, CD/DVD's, audio, pamphlets and full text databases etc. These technical institute's libraries also provide book bank highlighting on the SC and ST students and low income group where the user have the privilege of borrowing the book for a longer period than the other users. The NITs are set up with the aim of promoting regional diversity and multi-cultural understanding keeping in view creating and producing a maximum number of engineers and technocrats in the country. The libraries of NIT in North-East are also equally focussing their attention in developing e-journals, e-books etc. so as to supplement the academic needs of the users.

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#### **4.1 Introduction**

Model symbolizes to an exemplar in the tributary working environment which facilitates benefits to the users in multiple ways. It generally creates a situation for the library who happens to be the facilitator and the users who take optimum benefits of the resources of the library. To materialize the same the planning process starts with an analysis of the present environments with the available infrastructures coupled with skilled personnel including the climate in which resource sharing in the library takes place. The model library in the 21<sup>st</sup> century does not confine to the resource accumulator rather, it has extended its domain to providing various new services like, digital content, enhancing support for e-science, e-scholarship, digital humanities, exploring innovative approaches to support research, fostering database by integrating institutional and government documents and providing services to the users communities both in house and the digital surroundings. (<http://www.library.illinois.edu/nsm/background/nsmfinal/>).

A model in general sense signifies to a representation containing the essential structure of some objects. It is also a plan or to form a pattern or a shape. It further relates to make an outlay or structure through computer programs or a set of mathematical equations. Model is a system which after creation requires to be followed which however, requires some addition, deletion, amendment etc. to make it massive success.

Thus, model is defined as standard which disseminate accurate information which, however, depends upon the infrastructures in the institute with the skilled and technology oriented manpower to resolve the problems encountered while accessing information with authenticity and reliability. Moreover, it rests on the standard principles. It also works as a framework and guideline in the concerned subject area as research is being performed in different models taking into account the subject areas. Basically, it involves an improvement policy of the model most suitable to the need of the users who retrieve information. Library and Information Science as a subject is also no exception to it. Library services being the user centric, establishing a definite model is a stupendous task. And as such, there is no single approved model for a library consortium. Especially in the field of library services, consortium model depend upon the requirement of the type of electronic journals and membership which are still found to be lacking in Indian libraries. It is also a fact that a single consortium cannot serve all classes of users due to their varied nature of subjects for all types of general institutions, research stations etc. Moreover, academic disciplines also do not confine to a single stream. This is the reason why operation of library services for a multiple users irrespective of disciplines is next to impossible.

The primary concern for adoption of model library depends upon the skilled senior professional with the leadership quality to develop the vibrant strength of professionals for sustainable development of library. Philosophy, Principles, Properties are some of the fundamental features of the conceptual model.

([https://www.mq.edu.au/\\_\\_data/assets/pdf\\_file/0005/98582/143232.pdf](https://www.mq.edu.au/__data/assets/pdf_file/0005/98582/143232.pdf)).

From the above discussion it could be visualized that a model represents to a systematic representation of the functional part of an organization. The primary concern of model depicts the usefulness to the degree it conforms and making correspondences to the underlined determinants of communicating behavior. This is very much applicable in the library as the model represents the total works and services performed in the library. There are many advantages of a model which clearly denotes the functional parts of the system. However, there are certain limitations with a model plan with regard to confusion of the model between the behaviors it portrays. (Mortensen, 1972).

In the national scenario the library services are being extensively provided to the user community. The libraries of the institutes excel their services in many fold direction using the information and communication technologies. In the technical arena, the NIT libraries of Kurukshetra, Warangal and Surathkal are the best exemplary libraries who had initiated their services in many fold direction for sustainable teaching and research. It also adds value potentially in the teaching process in technical sphere.

The library services provided by these three important institutions are discussed below:

#### **4.2 Central Library NIT Surathkal**

Acclaimed as one of the reputed institute the Central Library of NIT Karnataka, Surathkal provides extensive service to the user community. Segregated into two wings, the library facilitates services of current periodical, journals and bound volumes in western wing while books are extensively available in eastern wing. This is due to the availability of abundant literature in the library. It provides the modern facilities and offer automated library services to its user comprising more than 6000 which include undergraduate, postgraduate, research scholars, faculties and supporting staffs of various academic department.

While discussing the functional timing of the library, it operates fifteen hours in working days and eight hours on weekend days including four hours on gazetted public holidays. Thus, it operates throughout the year nonstop leading thereby access to resources by the users instantly.

While mentioning about the collection strength of the library, it has developed the resource strength through books, conference proceedings, reports, periodicals etc including non-book materials and CD-ROM.

#### **4.2.1 Logistic Support**

The Central Library of NIT Surathkal provides campus wide Wi-Fi connectivity along with the digital library section where more than twenty five computers are installed for the use of resources. It also provides the advance facility of accessing the resources of the library with one computer terminal in the entrance of the library which connects to the main database of the library.

Further, the library is fully automated using the LIBSYS 7.0 advance software compatible with web directly so that the user can get access to the internet instantly from the system. The library further provides more than twelve computer terminals for the staffs and students to access the information with regard to the books periodicals and back volume.

#### **4.2.2 Sources**

The library provides online service facilities to the users who access e-Shodh Sindhu directly from the source. The other online resources which the library provides include IEL Online, Science Direct, Nature, ASTM, ASCE, ASME etc. To strengthen the academic activities, it also provides the user resource sharing and inter-library loan facility. The library equally facilitates the technocrats' full text resources of Springer Link, Taylor and Francis and a good number of e-journals.

Commendable steps have been undertaken by the NIT Surathkal by instituting the digital library funded by TEQIP where the library shares with other NIT libraries, IIT libraries and various industrial libraries.

The services of the digital library include the following:

- Collection and development of library materials in digital form.
- On-line search for books using on-line public access catalogue (OPAC)
- On-line electronic journal access through e-Shodh Sindhu
- CD-ROM server with reference materials like encyclopedias, engineering, index, hand books.
- Technical reports of Bureau of Indian Standard (BIS) in digital form.
- E-printing of Research publications of the institute.

- Online access (LINKS) to other libraries (IITs NITs DELNET, etc.).
- Suitable infrastructure to use the digital sources of information.
- Intranet and Internet services.

#### **4.2.3 Book-Bank**

General book-bank for all students consists of multiple copies of textbooks. The books are lent to all students for home reading for 30 days. Every year multiple copies are added to the book-bank. There are 30,049 books available in all branches in book-banks of this library. Automation of book-bank book is completed and the circulation of books is being done by using barcode system.

#### **4.2.4 Special Collection**

The special collection for ST/SC students is provided where students can borrow upto 5 books from book-bank for a period of one semester. The library issues a circular in the beginning of every semester and the eligible students may apply to avail as per the schedule announced by the library.

#### **4.2.5 Services**

From the above discussion the library services provided by NIT Surathkal are summarized as follows:-

- New Access System
- New arrivals list
- Newspaper clipping display
- Selective dissemination of information and current awareness service (SDI and CAS)
- Book-Bank facility
- Digital Library
- Inter-Library loan of books
- Reprographic services
- On-line public access catalogues
- CD-ROM database access
- Compilation of bibliography on selected topics
- Practical and Apprenticeship training for diploma and degree student of Library and Information Science
- On-line information retrieval through DELNET

- E-journals through e-ShodhSindhu Consortium
- E-books facility

### **4.3 Central Library NIT Warangal**

The NIT Library Warangal is also an exemplary among different NIT libraries in India. It provides strength for teaching and research including dissemination of information and resources to its clientele. The strength of the collection of resources amounts to more than 1,90,000 along with the other resources like back volumes, technical pamphlets, standards, CD-ROM, video cassettes and e-books etc. The collection strength can well be judged through the amount spend in the library and the library spends more than 9 crores to develop the resources. The detail resources available in the library are projected in Table 22 which visualizes the strength of the library.

Regarding the automation, the library is fully computerized and it uses the latest LIBSYS software for all type of operations in the library and thus creates a virtual environment in the library.

#### **4.3.1 Logistic Support**

The library has developed adequate logistic support like computers, printer etc to support the library services. The library has developed a complete Wi-Fi connectivity and campus LAN in the entire campus leading thereby accessibility to internet and the library resources throughout the year. This, it provides a nonstop library services.

#### **4.3.2 Digital Library**

The Library facilitates campus LAN connectivity with fiber optic cable through the Computer Centre which is connected to web server (Duel Xeon). It is also equipped with 50 systems providing network facility which are installed for accessing/browsing Online. During the year 2003 the MHRD, Govt. of India, New Delhi formed a “Consortia-based subscription to Electronic resources for Technical Education” and named as INDEST (Indian Nationals Digital Library in Engineering Science and Technology, and its headquarters are at IIT Delhi, Delhi and receiving about 2000 online journals. The online Journals that is available through INDEST-AICTE, NIT consortium and NITW. The library thus, is accessible throughout the year through OPAC which creates a dedicated academic environment for the students, scholars and faculties. The networking of the entire campus is another achievement for the library which connects the

user directly to the servers. In the process, the user access wide range of e-resources which support substantially for the academic development. The other initiatives taken by the library includes the scientific management of the e-resources through e-learning software. Thus, it not only provides strength to the user through resources but also adequately support the distance learners and it can be viewed that it supports adequately to promote e-learning. The mechanism has been made in such a way that the user can access the virtual library through offline.

### **4.3.3 Institutional Repository**

The library also has developed Institutional Repository which acts as a digital archive of research outputs developed/created by the faculties, research scholars etc. All the dissertations both at BTech and MTech level, project reports, institutional reports, administrative reports etc are available in the Institutional Repository to which the user at large can access through online. The development of relevant IT infrastructure such as hard disk, catching server, systems and furniture are in the pipeline.

### **4.3.4 Services**

The NIT Libraries use to provide adequate services especially in electronic form. The traditional resources are one of the major sources of information and apart from that the electronic resources substantially add immense value for higher learning, research and development etc. The services generally provided by the NIT Libraries under study are discussed below:

#### **4.3.4.1 DELNET**

The DELNET (Developing Library Network) New Delhi connectivity is also provided in the Library for searching Bibliographical databases and abstracts of various technical subjects of the other institutions.

#### **4.3.4.2 Audio-Visual (AV)**

The Central Library houses an audio-visual section with 2 sets of TVs and VCRs. A good collection of Educational Videos are available on varied subjects.

#### **4.3.4.3 EDUSAT**

EDUSAT is the first Indian Satellite designed and developed exclusively for serving the educational sector. It is mainly intended to meet the demand for an interactive satellite based

distance education system for the country. It is a collaborative project of ISRO, MHRD, AICATE and IGNOU. A satellite terminal has been installed in September 2005 at NIT, Warangal under EDUSAT to receive on-line lectures from ISRO HUB, IGNOU, AICTE covering various subjects of Science and Technology.

#### **4.3.5 E-resources**

The library has taken positive initiatives to provide the e-resources service through negotiation with INDEST ICT Consortium. The e-resource services provided by the library include ASCE, ASME, ACM Digital Library, IEL Electronic Library and Springer Link. Mention may be made that the cost of the ACM Digital Library is borne by MHRD Govt. of India through Consortium while for IEL, Electronic Library, online is borne by NIT Library, Warangal from its fund.

The subscription based e-resources in NIT Library include the following disciplines:

- ✓ Elsevier's Science Direct (8Subject Collection): Engineering, Computer Science, Chemical Engineering, Material Science, Energy, Maths, Physics and Chemistry.
- ✓ Taylor & Francis (4Subject Package): Maths& Statistics, Chemistry and Physics.
- ✓ Royal Society of Chemistry Gold packages
- ✓ J-Fate Custom Content for Consortia (JCCC)

The library also allows perpetual access to e-books in the following discipline:-

- a) CRC online e-books (Taylor & Francis) Civil, Mechanical and Chemistry (43 titles).
- b) Pearson (including Prentice Hall) Online e-books Civil & Mechanical (36 titles).

#### **4.3.6 Best Practices**

The best practices followed by the NIT Libraries are the guidelines for other libraries. The practices as discussed below contribute immensely to provide effective services in the libraries.

- Information Brochure (Circulation to the freshers every year to guide about the library)
- Conducting user Orientation Programme for freshers.
- Information display and notification
- Publication and research support services (Elsevier Science Direct article alerts sending to the faculty through e-mail)
- A feedback from stakeholders through scientifically designed and analyzed questionnaire once in two years. (90 % of the users are expressed satisfactory)
- Suggestion Box and timely response

#### **4.4 Central Library NIT Kurukshetra**

The Central Library of NIT Kurukshetra is a premier agency to support the cost of research, learning and teaching to the users. It has grown to a substantial size regarding its collections and imparting and various dimensional services for the widest academic benefit. A library with an innovative idea promotes the use in various ways to use the resources of the library. The resources of the library include books, journals, e-resources comprising e-books, e-journals, Electronic Theses and Dissertations etc which substantially extend benefit to the user community especially to the faculties, research scholars and the students for sustainable teaching, learning and research. The library facilitates various services in an automated environment system.

The library is purely computerized which KOHA library software and all sections of the library are providing automated services to the users. Continuous update of the database in the library excels the benefit to the users who access the library through Web OPAC. The library has taken the security measure for all documents which are barcode. The services imparted by the library can be discussed as follows:

##### **4.4.1 Book Bank**

It is well equipped with the core books which are required for all types of students which include BTech, MTech, MBA and MCA. Even if library provides 8 books in a semester to the students without any charge the library also extend the benefit of 5 additional books to the readers against a nominal charge of Rs 30/- per book for full semester. This extends the highest benefit to the students especially who prepare various assignments and promote their academic skills.

##### **4.4.2 Opening hours**

The reading room of the library operates non-stop throughout the day and night in weekdays which is an example to other academic institutions. The library functions 12 hours in all weekdays while on public holidays and Saturdays and Sundays it operates for 7 hours which is unique and the users are benefitted extensively.

##### **4.4.3 Resources:**

The library promotes the reading habits in electronic environment and hence provides video cassettes and CD-ROM facilitates to the users. Mention may be made that as of now the



library in its collection has developed more than 663 educational disk prepared by IITs and other agencies for self-learning 61 CDs in various dimension of knowledge etc. to promote the reading habits through such non book materials. The library has set up an audio-visual center which attracts the users massively.

e-ShodhSindhu , the another vibrant electronic source of information extend the benefit to the users. A project of MHRD, the e-ShodhSindhu provides adequate benefit to the users. It may be mentioned that the library subscribes the Consortium based e-resources which amounts to more than 5400 e-resources. For a security reason, the resources are accessible through IP address on intranet. The important e-resources subscribed through consortia includes ACM Digital Library, American Physics Society, ASCE Journals Online, ASME Journals Online, ASTM Standards+Digital Library, Economic & Political Weekly, Emerald CFTI Collection, IEEE/IET Electronic Library, Institute for Studies in Industrial Development(ISID) Database, JGate Plus(JCCC), JSTOR, Nature, Oxford University Press, Web of Science Lease Access, World Library etc. Some of the consortia directly subscribed by the institute includes ACI MCP, AIP, ASCE Proceedings, Capitaline, CUP: Science and Technology, EzProxy, FedGate, Proquest Database: Theses, Sage Publication, Science Direct Journals with Back Files, SciFinder, Springer Journals with back files, Springer: LNCS 2017, T &F:351 Journals etc.

#### **4.4.4 J-Gate Plus**

J-GatePlus Custom Content for the e-ShodhSindhu (ESS) consortium was set up by the MHRD. It provides the facility to users of NITs to get an article from other member libraries of e-Shodh Sindhu consortium. If a journal is not subscribed by NIT Library and is available with any IIT or IISc, a user can send the online request for an article. The copy of requested article is supplied by the concerned IITs/IISc to the NIT Library.

#### **4.4.5 NPTEL Web & Video Courses:**

The Library has procured NPTEL Web & Video Courses designed and developed by IIT, Chennai in various discipline of Engineering and Science for the use of Faculty Members, Research Scholars and Students. Users can access these videos courses through Library storage server [//172.16.0.53](http://172.16.0.53) & [//172.16.0.43](http://172.16.0.43).

#### **4.4.6 Indian & International Standards**

The library maintains the Indian and International standards on CD which is accessible on intranet. It provides the facility of browsing and printing only through their offices which are

connected with LAN. The other facilities of the library also include Reprography and Reference Services.

The Library Intranet site has Full-Featured Search Engine for IS Codes. A user can search for a particular IS Code either by its code number or by a specified keyword. Search with in a Search feature is also provided.

The Library also has a print version of 9979 Indian Standards and good number of British and Australian Standards including IRC Codes. A comprehensive list of resources available in NIT Surathkal, NIT Warangal and NIT Kurukshetra is placed is placed in Table-6.

Table 6: Resources of NIT Surathkal, NIT Warangal and NIT Kurukshetra

<b>S.No</b>	<b>Resources</b>	<b>NIT Surathkal</b>	<b>NIT Warangal</b>	<b>NIT Kurukshetra</b>
1.	Books	99482	1,90,631	57535
2.	Book-Bank Books	30524	-	103594
3.	Periodicals (Print- Indian)	161	125	86
4.	Periodicals (Print- International)	253	90	05
5.	Bound Volumes	15288	32,288	7097
6.	Standards	15454	7111	10097
7.	CD-ROM/Videos	2051	2055	1284
8.	Pamphlets	-	7646	-
9.	Thesis	-	-	4232
10.	e-books	200	79 Titles	9792
11.	e-journals	3462	2000	4000

Source: Annual Report NIT Surathkal 2014-2015, Annual Report NIT Warangal 2015-2016, and Annual Report NIT Kurukshetra 2015-2016.

<http://library.nitk.ac.in/>, [http://www.nitkkr.ac.in/sub\\_courses.php?id=367&id3=77](http://www.nitkkr.ac.in/sub_courses.php?id=367&id3=77) ,  
<http://www.nitw.ac.in/department/library/>.

It could be found that all the three NIT libraries of Surathkal, Warangal, Kurukshetra are adopting best practices in providing the services to their clientele. Even if in NIT Library, Silchar is making all out efforts to provide services to its users still, it needs developing the service horizons to suit to the users.

#### 4.5 Proposed New Model

However, in addition to the practices being followed by all the model libraries in the field of engineering, the following model plan also can be developed in the NIT libraries of North-East to enhance the library function and it will facilitate the optimum utilization of library resources in the respective library for sustainable learning, research and development.

### LIBRARY SERVICE MODEL

Figure-24: Library Service Model

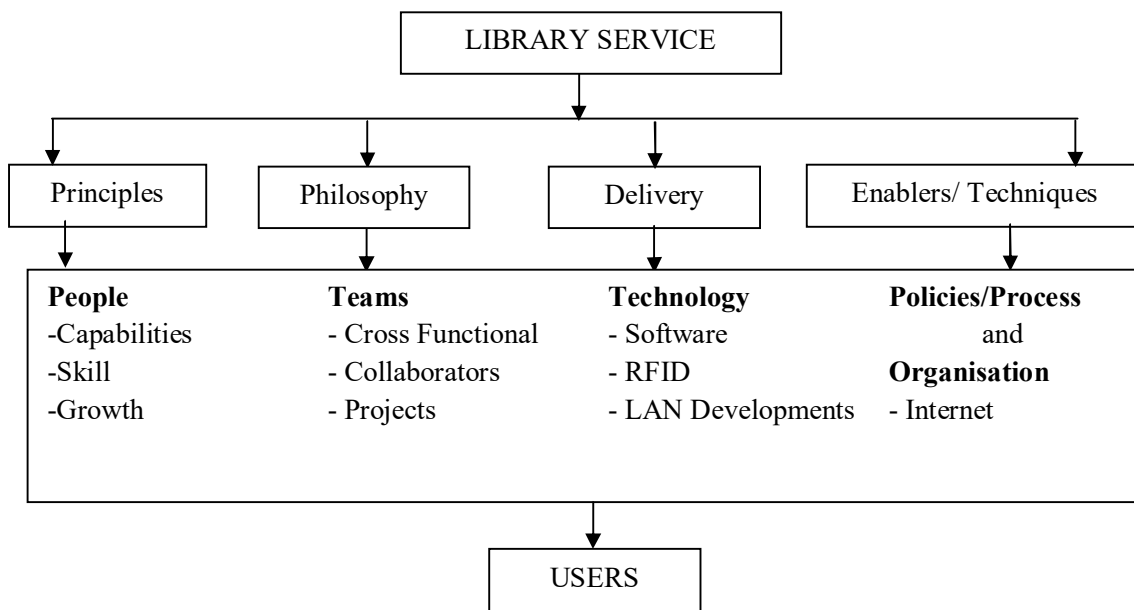


Figure 25: Networking of NIT Libraries in North East

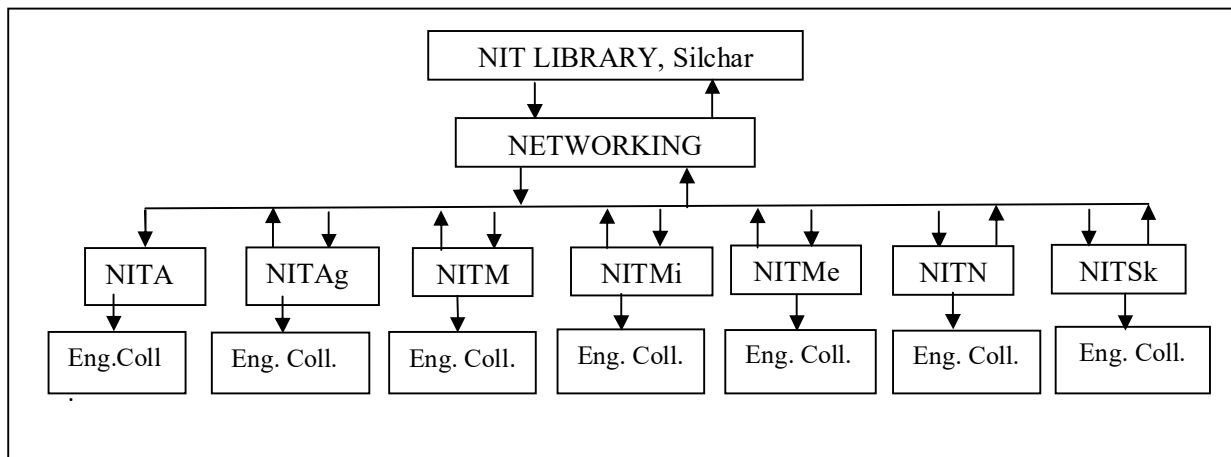


Fig.25: Networking of Libraries

#### **4.5.1 Changes in Service Principles**

The service principles are quality service delivery by incorporating the best practices required by the institution. This service is committed to developing innovative ideas, as well as giving importance to the skills with regard to technology based services. The primary goal of the engineering libraries is to provide services that support the curriculum and fulfil the information needs of its fraternity. In order to guide the services delivery to its users, all the library staff members shall be involved in service delivery and are expected to interact directly with clients both internally and externally. The client services used are considered holistically which may be flexible according to the required services including both tailored and personalised services. Another important service principle is enhancing the capability of services by preserving and nurturing specialised knowledge and expertise and also the challenges of exploring opportunities for the growth and development. In order to serve the users, the services of the engineering libraries are grouped which can be accessed by the users for obtaining their required information. The libraries need to be implemented in such a way that the workflows are end to end processes which are free of functional boundaries.

(<http://www.library.illinois.edu/nsm/background/nsmfinal/>,  
[https://www.mq.edu.au/\\_\\_data/assets/pdf\\_file/0005/98582/143232.pdf](https://www.mq.edu.au/__data/assets/pdf_file/0005/98582/143232.pdf))

#### **4.5.2 Changes in Service Philosophy**

In view of the changing attitude and inter-disciplinary research in the technical institutes, it has become pertinent for the libraries to accommodate and accept the varied requirements of the researchers. It can be achieved successfully through a holistic approach where the library professionals in the technical institute need to respond to the individual of the technocrats and researchers demand including collective approach. A change in the mindset for the professionals has become the need of the hour to change the service philosophy in the libraries.

Further, a mechanism needs to be developed and employed to train the users to keep abreast with the technology in the library so that, the users will be self-sufficient to carry some operations like, charging and discharging, searching of resources etc. in the library. The other factors associated in the service philosophy include (i) Sharing of information and learning together by the library professionals and users of the institute to make a conducive environment in the library, (ii) Developing a strategies to provide quality information and services to the users using technologies and (iii) Initiating creativity to achieve excellence in the library services by the professionals and excelling measures to make use of resources by the user communities

([https://www.mq.edu.au/\\_\\_data/assets/pdf\\_file/0005/98582/143232.pdf](https://www.mq.edu.au/__data/assets/pdf_file/0005/98582/143232.pdf))

### **4.5.3 Changes in Service Delivery and Enablers**

For successful implementation of this model, six following attributes are essential relating to the service delivery mechanism and enabling the library to provide enhanced service to the users.

- i. User-oriented collection development is pragmatic to provide need-based services to the users and the library using technology can manage scientifically to provide access to the resources through OPAC and Web OPAC to the users.
- ii. Responsive service in the library is one of the major issues and the library needs to respond the queries initiated by the users irrespective of the platforms.
- iii. Collaborative service to the user is a major objective of the library and hence, the library needs collaboration with other agencies to provide useful resources/ information to the users.
- iv. The library must not confine to the functional boundaries rather, its horizon needs to be expanded using technology for better use of resources by the users.
- v. Quality service retains the face value of the library and hence, coordination among the other libraries is pragmatic for sustainable development of library services to the users.
- vi. Service must be based on evidence based to have transparency work environment.

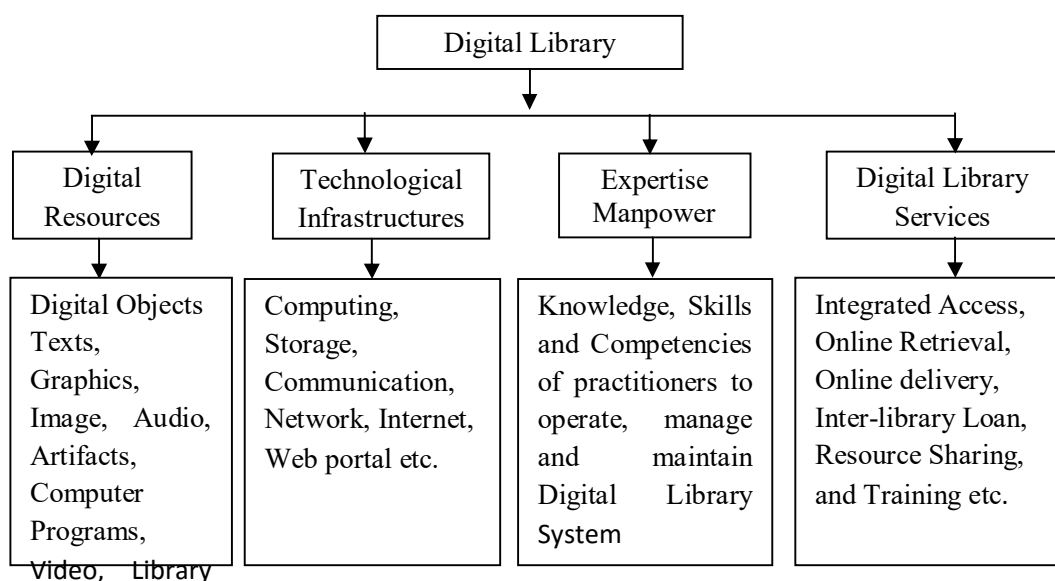
### **4.6 Digital Library Service**

Sweeping changes in library services in view of users changing information needs in the technology environment coupled with the availability of massive digital information compelled the libraries to accumulate, organize, and manage the electronic resources for effective dissemination. The technology has equally added impetus on the educators for curriculum development and in the process, the library professionals not only adapted towards the technology but also the educators inclined towards understanding the technology in teaching. The present trend demands implementation of developing technology oriented theoretical frameworks and empirical research in the areas like digital library and e-resource management which have got a practical implication in the present days. Further, the upshot of the change management in learning environment shifted from traditional to electronic which obligated the library professionals to compromise to such an altering scenario with adequate digital skill. Capacity building and skill development being the major and indispensable criteria in such a dynamic change, the educators need to be tuned to develop skilled manpower in libraries which is a must in next generation of librarianship. The digital Library focus primarily on Digital

Library Management System and it is associated with direct interface with the users through various technologies.

The digital technology also known as screen technology is the present norm of the education (Cavanaugh, Giapponi, Golden; 2016) where the library emanates services in technology based environment for optimising the benefits of the library by the users. The technological parameters applied in designing the digital library is well depicted below in Fig. 26.

**Fig. 26: Designing Digital Library**



**Fig. 26: Designing of Digital Library**

Source: <https://www.indiamart.com/proddetail/digital-library-system-4110648688.html>

The digital library model specific to the various operations in NIT libraries in North East require the following strategies for enhancement of knowledge and research productivity.

- ⇒ Digital Contents Lifecycle Management by way of accumulating authentic, reliable, user-centric digital resources.
- ⇒ The technological infrastructures engross Computing, Storage of e-resources in the server, providing communication, establishing network among the NIT libraries on Internet and facilitate service through Web portal etc.
- ⇒ Expertise manpower both in the subject and computer are essential so as to develop the computer programs for the website and provide the useful links to the e-resources. This is

to be followed with incessant maintenance of the Digital Library System and continuous update for effective use of the resources on the website.

- ⇒ The digital library services can be provided to the users through Integrated Access, Online Retrieval, Online delivery, Inter-library Loan, Resource Sharing, and imparting training in a regular interval to the users for effective use of the technology.
- ⇒ Integration of libraries among the NIT Libraries in North East so as to disseminate and exchange and sharing of information among each other.
- ⇒ Establishing a scholarly commons service model in each of the NIT library for enhancement of knowledge.
- ⇒ Creation of union catalogue to ascertain the resources available in different NIT libraries in the North East.
- ⇒ Instituting strategies in each of the NIT library for,
  - Enhancing support to provide e-resources, e-scholarship etc.
  - Promoting scholarly communication services.
  - Exploring measures to promote library support for multidisciplinary research.
  - Building a skilled manpower team to handle the digital resources.
  - Developing digital repositories and providing round the clock access in the campus through Wi-Fi and LAN.
- ⇒ Developing library consortia model and access to the resources by all the NIT libraries
- ⇒ Creating NIT, Silchar a hub centres and to link other seven NIT Libraries through networking as NIT, Silchar has comparatively possessed adequate infrastructure to support the network.
- ⇒ Instituting a nodal centre preferably at NIT Silchar which will be the gateway to all NIT libraries of North-East. The institute can be identified as the Regional Headquarters and act as a Nodal Centre where, all the user based electronic resources can be available in the server so as to provide seamless access and dissemination to the users in their terminals in all other seven NIT libraries in the North-East. Likewise, e-resources available in other libraries also can be shared and accessed by the different libraries.

⇒ The Nodal Centre will be responsible to establish connectivity through Internet with high bandwidth among all the NIT libraries in all the states of North-East who can be designated as Sub-Nodal Centre in the respective state so as to disseminate information to other engineering colleges in the region.

In this way, a total network among the NIT libraries and the engineering colleges can be established for effective sharing of resources and in the process, there will be effective use of resources of the individual library as per the practice followed in the three NIT Libraries of Surathkal, Warangal and Kurukshetra.

This will facilitate not only to the users the use of the electronic resources covered under the study among the NIT libraries and also the engineering colleges of the region but also will drastically reduce the library budget as most of the engineering college libraries including the NIT libraries subscribe almost the same journal titles. It can be mentioned further that, due to the stringent budget allocations most of the engineering college libraries are not in a position to subscribe journals and hence, the students and teachers are deprived of getting the benefits of the resources. Through this model, the students and faculties of the respective NIT libraries and the engineering college libraries can have a better opportunity to access exhaustively the e-resources and use the same for their reading, teaching, and research.

#### **4.7 Administration of Library Consortia in view of the Proposed Model**

Proposed model requires proper management to facilitate the use of electronic resources, man-power development, infrastructure building, and responsibilities with the NIT libraries. Different components of its administration are discussed below.

##### **4.7.1 Management Structure**

The management structure of the proposed model will be operative under the supervision of various committees where the persons already engaged in the NIT libraries will be shouldered with additional responsibilities including recruitment of skilled and technical manpower to be stationed in nodal and sub-nodal centres. Networking through Internet, Intranet and among the NIT libraries and cable and Wi-Fi connectivity with in NIT library can be built up with the help of technical manpower for speed, safety and security, free flow of electronic resources and regular maintenance.



#### **4.7.2 Objectives**

The following are the objectives of the proposed model.

- ☞ Control and reduce costs in the library expenditure;
- ☞ Achieve cost-effectiveness of the journals;
- ☞ Resource sharing through a network environment;
- ☞ Sharing licensing issues with each other;
- ☞ Promotion of use of e-resources among the NIT libraries and the engineering colleges in the North East region;
- ☞ Avoid duplication of subscription of e-resources and promote the rational use of funds;
- ☞ Optimum utilization of electronic resources in the educational institutes;
- ☞ Creating an ICT environment among the NIT libraries.
- ☞ Proper utilization of library budget in getting the electronic and traditional journals.
- ☞ Better negotiation for purchase of electronic journals with vendors;
- ☞ Creating an environment of skilled manpower development;
- ☞ Promote better, faster and more effective ways of providing electronic information resources to the information seekers;
- ☞ Ensuring of continuance of the periodical subscription;
- ☞ Bring awareness and explore the benefits of existing library services through technology.
- ☞ Increase the efficiency of intellectual developments through papers by the faculties of the NIT libraries.
- ☞ Encouraging research and development among the institutions;

#### **4.8 Conclusion**

Library model is a framework for undertaking different operations in the library in an efficient way using the technology. It is an umbrella through which apart from providing benefits to the users by the individual library, the other engineering college libraries connected through networking in North East also can take the benefits for their users. Budget being a constant problem in the library system also can be reduced and it can be properly used for a judicious selection of user-centric resources. The proposed model as suggested will facilitate the NIT libraries including the engineering college libraries for getting access to the e-resources round the clock and in the process, the entire community will get the benefits. The technological revolutions have posed challenges for the libraries and simultaneously created enormous opportunities to the library professionals in developing the knowledge society. The libraries of

technical institutes anticipate the changes and grasp the importance of cooperation and partnership among the libraries to move forward. Electronic consortia have been building to bridge the gap of information delivery in order to obtain the advantages of distributed network and promote better and faster along with cost-effective ways of providing access to electronic information resources. The proposed model is a sign of good efforts among the NIT libraries as well as the regional technical libraries of North East region. The networking of the libraries of NIT will act as the meaningful effort which is completely due for the North Eastern Region and such an initiative is presumed to trigger remarkable development which needs proper execution and immediate implementation to ensure the growth of library services of the technical institutes within the region.

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## 5.1 Introduction

Analysis reveals the ground reality about the libraries. It is one of the important concepts of the research as it performs analysis based on the questionnaires. In a library, analysis reveals the fact about the modus operandi of the library. It refers to the computation of certain measures along with searching for patterns of relationship that exist among data groups. The analysis of data in a general way involves a number of closely related operations, which are performed for the purpose of summarizing the collected data and organized in coherent manner to facilitate the respondents to answer the questions. Hence, analysis is the upshot of insight into the total situation, paying upon the assembled facts and giving them a general significance.

## 5.2 Analysis by Respondents

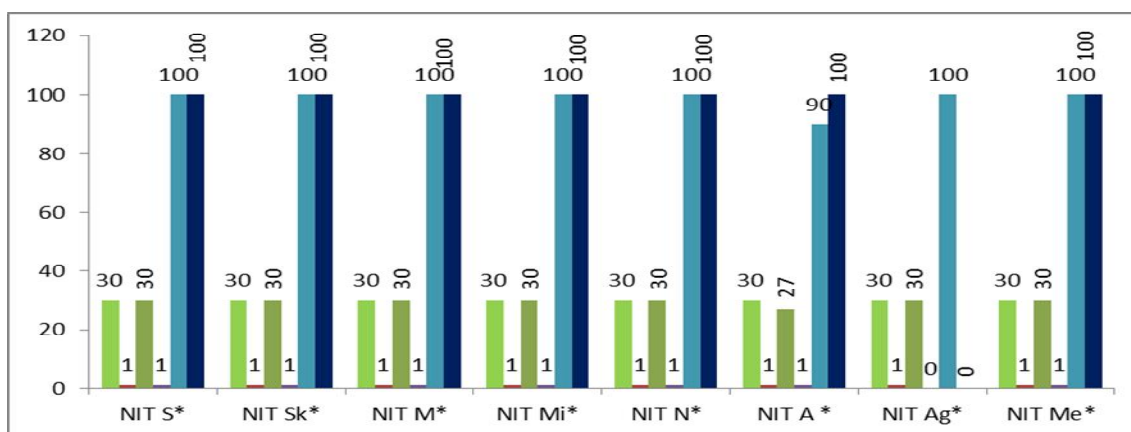
Respondents play a key role in providing the useful information of a library. The authors distributed a total number of 240 structured questionnaire out of which 237 filled in questionnaires have been received. Table-7 supplemented with Graph-1 placed below reflects the institution wise respondents of the questionnaires and the librarian as well including the percentage of sample representation of the respondents of respective institution of all 8 NITs covered under study.

Table-7: Institution-wise Respondents

SL No.	Institute	QD*		QR**		% of respondents		% of sample representation	
		Users	Librarian	Users	Librarian	Users	Librarian	Users	Librarian
1	NIT S*	30	1	30	1	100	100	13	13
2	NIT Sk*	30	1	30	1	100	100	13	13
3	NIT M*	30	1	30	1	100	100	13	13
4	NIT Mi*	30	1	30	1	100	100	13	13
5	NIT N*	30	1	30	1	100	100	13	13
6	NIT A *	30	1	27	1	90	100	11	13
7	NIT Ag*	30	1	30	0	100	0	13	0
8	NIT Me*	30	1	30	1	100	100	13	13
	<b>Total</b>	<b>240</b>	<b>8</b>	<b>237</b>	<b>7</b>	<b>99%</b>	<b>88%</b>	<b>102</b>	<b>91</b>

Abb. \*QD- Questionnaire Distributed, \*\*QR- Questionnaire Received, NIT S\*=Silchar, NIT Sk\*= Sikkim, NIT M\*= Manipur, NIT Mi\*= Mizoram, NIT N\*=Nagaland, NIT A\*= Arunachal Pradesh, NIT Ag\*= Agartala, NIT Me\*= Meghalaya. Source: Questionnaire

N.B. <5 has is rounded to the previous digit, >5 is rounded to the next digit.



Graph-1: Institution-wise Respondents

Analysis of the Table-7 revealed that, the users comprising of Students, Research Scholars and Faculties were circulated with the questionnaires 30 each in all 8 NITs under study which comes to 240. Further, the librarian of the respective institute was also circulated with the questionnaire to elicit information about their respective library. It could be found from the Table-7 that, all the users i.e, 30 (100%) each responded the questionnaire excepting NIT Arunachal Pradesh. Moreover, all the librarians of eight (8) NITs excepting NIT Agartala responded the questionnaire.

Thus, the response rate to the questionnaire was 30 (100%) out of 30 from all 7 NITs covered under study while, for NITA i.e., NIT Arunachal Pradesh, it was 27 out of 30 (90%). Further, the sample representation of the users of 7 NIT's such as Silchar, Mizoram, Sikkim, Agartala, Nagaland, Manipur and Meghalaya is 13% while for Arunachal Pradesh, it is 11%. Moreover, the sample representation of the librarian of the NITs also comes to 13% excepting NIT Agartala. However, in toto, there is a good response and it depicts the interest of the respondents who want to reveal the ground reality of the respective library services.

### 5.3 Analysis by Category of Respondents

As mentioned, the category of respondents for the study constitutes Students, Research Scholars and Faculties of all 8 NIT Libraries. The data relating to the respondents obtained from all the three categories of 8 NIT Libraries is placed in Table-8 for analysis which is endorsed with Graph-2 and Table 8A showing various parameters of statistical inferences.

Table-8: Category-wise Respondents

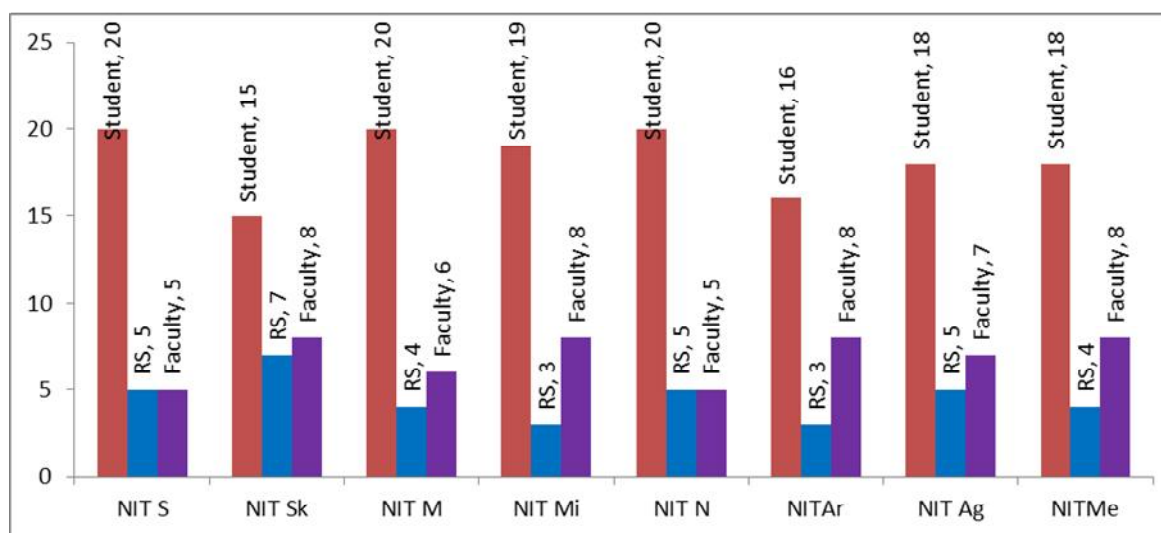
SLNo.	Institute	Student	%	RS*	%	Faculty	%	Total
1.	NIT S	20	67	5	17	5	17	30
2.	NIT Sk	15	50	7	23	8	27	30

3.	NIT M	20	67	4	13	6	20	30
4.	NIT Mi	19	63	3	10	8	27	30
5.	NIT N	20	67	5	17	5	17	30
6.	NITAr	16	59	3	11	8	30	27
7.	NIT Ag	18	60	5	17	7	23	30
8.	NITMe	18	60	4	13	8	27	30
<b>Total</b>		<b>146</b>		<b>36</b>		<b>55</b>		<b>237</b>
	<b>%</b>	<b>62</b>		<b>16</b>		<b>24</b>		<b>100</b>

Abb. \*RS- Research Scholar,

Note: .5> has been rounded to the next digit, while <.5 is rounded to the previous digit,

Source: Questionnaire



Graph-2: Category-wise Respondents

Table -8A: Parameters of statistical inferences with regard to respondents

Parameters	Students	Research Scholars	Faculties
Mean	18.25	4.5	6.875
Standard Error	0.674801558	0.46291005	0.479490057
Median	18.5	4.5	7.5
Mode	20	5	8
Standard Deviation (SD)	1.908627031	1.309307341	1.356202682
Sample Variance	3.642857143	1.714285714	1.839285714
Kurtosis	-0.620069204	0.875	-1.685964747
Skewness	-0.801315155	0.763762616	-0.622812656
Range	5	4	3

Minimum	15	3	5
Maximum	20	7	8
Sum	146	36	55
Count	8	8	8

Table-8 on analysis revealed that, out of the 237 respondents, students communities constitute the highest i.e.,146 (62%), followed by Faculty member 55 (24%) and Research Scholars 36 (16%). The percentage calculation of the respondents out of the total respondents of the respective institution shows that, the highest rate of respondents are the students each with 20 (67%) from NIT Sikkim, NIT Manipur and NIT Nagaland and the highest rate among the faculties are from NIT Sikkim, NIT Mizoram, NIT Meghalaya each with 8 (27%) and NIT Arunachal Pradesh 30% among all the eight NIT Libraries. Further the statistical inferences shows that, the mean value for the students comes to highest i.e, 18.25 followed by 6.875 for faculties, and 4.5 for scholars. Again, the SD for Students, Faculties, and Research scholars comes to 1.908627031, 1.356202682, and 1.309307341 respectively.

#### 5.4 Analysis by Gender

Gender representation is one of the important components among the respondents which visualise the interest to submit their thought and expression through the questionnaire. The data relating to the component obtained through the questionnaire for the present study is placed below in Table-9 for analysis and the same is complemented with Graph- 3 for visualisation. The statistical analysis for the present component is shown in Table-9A.

Table-9: Gender-wise Respondents

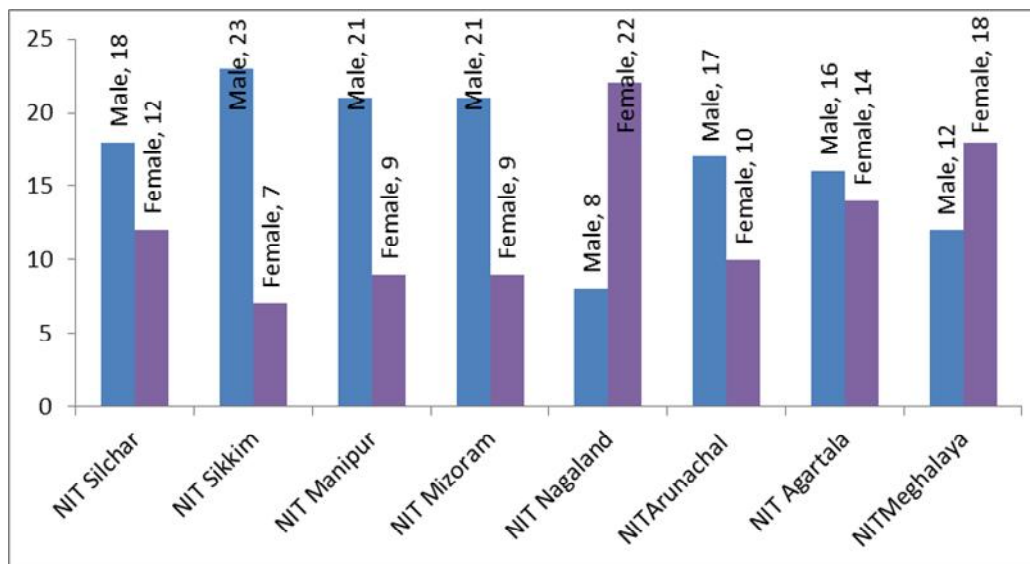
SL No.	Institute	Male	%	Female	%	Representative Sample %		Total
						Male	Female	
1.	NIT S	18	60	12	40	13	12	30
2.	NIT Sk	23	77	7	23	17	7	30
3.	NIT M	21	70	9	30	15	9	30
4.	NIT Mi	21	70	9	30	15	9	30
5.	NIT N	8	27	22	73	6	22	30
6.	NITA	17	63	10	33	12	10	27
7.	NIT Ag	16	53	14	47	12	14	30
8.	NITMe	12	40	18	60	9	18	30



<b>Total</b>		<b>136</b>		<b>101</b>		<b>100 or 99</b>	<b>100 or 101</b>	<b>237</b>
		<b>57%</b>		<b>43%</b>				

Note: <.5 is rounded to next digit, while .5> is rounded to previous digit.

Standard Deviation for both Male and Female - 5.394055.



Graph-3: Gender -wise Respondents

Table-9A: Statistical Analysis of Gender-wise Respondents

Parameter	Male	Female
Mean	17	12.625
Standard Error	1.772810521	1.812038118
Median	17.5	11
Mode	21	9
Standard Deviation	5.014265364	5.125217765
Sample Variance	25.14285714	26.26785714
Kurtosis	-0.020971074	0.047634554
Skewness	-0.770528898	0.976629425
Range	15	15
Minimum	8	7
Maximum	23	22
Sum	136	101
Count	8	8

Standard Deviation for both Male and Female - 5.394055

Analysis of data relating to gender obtained under the study shown in the above Table 9 revealed that, out of 237 respondents, 136 (57%) constitute the male while, 101(43%) constitute female. Further the representative sample of institutionwise shows that NIT Sikkim is the highest with 23 (77%) followed by NIT Manipur and NIT Mizoram each with 21 (70%) . Female representative sample shows that NIT Nagaland is the highest with 22 (73%) and followed by NIT Meghalaya and NIT Agartala with 18 (60%) and 14 (47%) respectively. Further,while calculating the representative sample of both male and female, it was found that NIT Sikkim constitute the highest i.e., 17% followed by NIT Manipur and NIT Mizoram each with 15% and NIT Arunachal Pradesh and NIT Agartala with 12%. Likewise, the representative sample for female comes to 22% at NIT Nagaland which is the peak followed by 18% in NIT Meghalaya and 14% NIT Agartala. The statistical calculation shows that, the mean value for men is 17 while for female it is 12.625. The Standard Deviation for male is 5.014265364 and for female, it is 5.125217765. Further, for both male and female, the Standard Deviation is 5.394055.

### 5.5 Analysis by Library visit

Library visit is one of the major components for the present study. The visit of the users to the library shows their interest for undertaking various academic works. Data relating to the present study of all 8 NITs with regard to library visit by the users is placed here in Table 10 for analysis.

Table-10: Library visit

SL No.	Institute	Yes	%	No	%
1.	NIT S	30	100	0	0
2.	NIT Sk	30	100	0	0
3.	NIT Mr	30	100	0	0
4.	NIT Mi	30	100	0	0
5.	NIT N	30	100	0	0
6.	NITA	27	100	0	0
7.	NIT Ag	30	100	0	0
8.	NITMe	30	100	0	0
	<b>Total</b>	<b>237</b>	<b>100</b>	<b>0</b>	<b>0</b>

While analysing Table 10 with regard to library visit by the users of all 8 NITs covered under the study, it could be surprisingly found that all the users constituting Students, Research

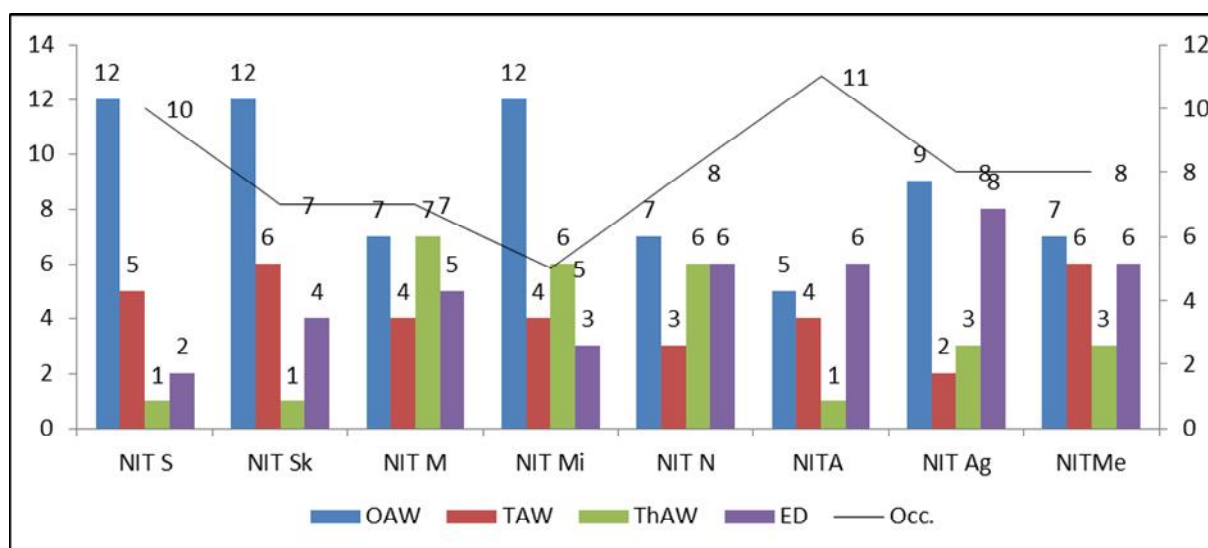
Scholars and Faculties of the said NITs visit the library in toto i.e., 100% and this is a very healthy sign for the library and the users too who are concerned with the library services. This also shows their intuitiveness on various library activities.

### 5.6 Analysis by Frequency of visit

Frequency determines the time interval of visiting the library by the users. Data relating to the periodicity of library visit by 237 respondents of all 8 NITs in North East Region are mentioned in Table 11 which is supported with Graph-4 for clear understanding and statistical inferences in Table- 11A.

Table-11: Frequency of visit

SL No.	Institute	Once a week	Twice a Week	Thrice a Week	Everyday	Occasionally	Total
1.	NIT S	12	5	1	2	10	30
2.	NIT Sk	12	6	1	4	7	30
3.	NIT M	7	4	7	5	7	30
4.	NIT Mi	12	4	6	3	5	30
5.	NIT N	7	3	6	6	8	30
6.	NITA	5	4	1	6	11	27
7.	NIT Ag	9	2	3	8	8	30
8.	NITMe	7	6	3	6	8	30
<b>Total</b>		<b>71</b>	<b>34</b>	<b>28</b>	<b>40</b>	<b>64</b>	<b>237</b>
		<b>30%</b>	<b>14%</b>	<b>12%</b>	<b>17%</b>	<b>27%</b>	



Graph-4: Frequency of visit

Table-11A: Statistical Inferences of Frequency of visit

Parameter	OAW	TAW	ThAW	ED	Occ.
Mean	8.875	4.25	3.5	5	8
Standard Error	0.989904	0.49099	0.886405	0.681385	0.654654
Median	8	4	3	5.5	8
Mode	12	4	1	6	8
Standard Deviation	2.799872	1.38873	2.507133	1.927248	1.85164
Sample Variance	7.839286	1.928571	6.285714	3.714286	3.428571
Kurtosis	-1.83905	-0.55309	-1.90186	-0.37692	0.35
Skewness	0.117968	-0.16002	0.326342	-0.15965	0.180021
Range	7	4	6	6	6
Minimum	5	2	1	2	5
Maximum	12	6	7	8	11
Sum	71	34	28	40	64
Count	8	8	8	8	8

Abb. OAW- Once a Week, TAW- Twice a Week, ThAW- Thrice,ED- Everyday, Occ.- Occasionally

While analysing the above Table-11, it could be found that a good number of users covered under study which covers to 71(30%) visited the library once a week followed by 64(27%) users occasionally and 40 (17%) everyday. The statistical inferences shows that for all the 8 (eight) NIT libraries the Mean value for Once a week comes to 8.875 followed by 8 (eight) for occasionally visitors and 5 (five) for everyday visitors to the library. Likewise, the standard deviation 2.799872 stands at the apex for the users who visited once a week. It is surprising to note that the standard deviation for the user comes to 2.507133 for the users who visited the library thrice a week followed by 1.927248 for everyday visitors. This shows that respondents are inclined to use the library for different academic purposes which is a healthy symbol for the library. It can be inferred that, the libraries are fully equipped with adequate resources with passable infrastructures to support learning, teaching and research.

### 5.7 Analysis by purpose of library visit

To ascertain the purpose of visit to the library is also equally important for the present study. Therefore, to be more specific about the purpose of visit of the users to the libraries under coverage, data were obtained and placed below in Table-12 for analysis and the same is supplemented with Graph- 5 for clear depiction. The respondents consisting of Students, Research

Scholars and Faculties exercised multiple options and hence, for this component of the study n=360 instead of 237.

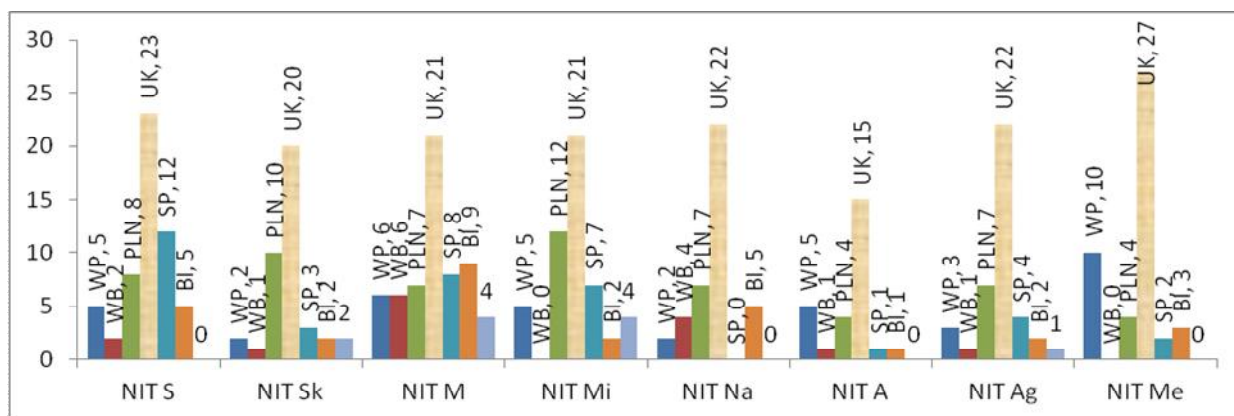
Table-12: Purpose of Library visit

SL No.	Purpose	NIT S	NIT Sk	NIT M	NIT Mi	NIT Na	NIT A	NIT Ag	NIT Me	Total	%
1.	WP*	5	2	6	5	2	5	3	10	<b>38</b>	10
2.	WB*	2	1	6	0	4	1	1	0	<b>15</b>	4
3.	PLN*	8	10	7	12	7	4	7	4	<b>59</b>	16
4.	UK*	23	20	21	21	22	15	22	27	<b>171</b>	48
5.	SP*	12	3	8	7	0	1	4	2	<b>37</b>	10
6.	BI*	5	2	9	2	5	1	2	3	<b>29</b>	8
7.	Others	0	2	4	4	0	0	1	0	<b>11</b>	3
	<b>Total</b>	<b>55</b>	<b>40</b>	<b>61</b>	<b>51</b>	<b>40</b>	<b>27</b>	<b>40</b>	<b>46</b>	<b>360</b>	99 or 100
	%	15	11	17	14	11	8	11	13		

Abb.: WA- Writing a paper, WB- Writing Book, PLN-Preparing Lecture Note, UK-Update Knowledge, SP- Starting a Project, BI- Browse Internet.

Here, n=360, N= 237,

Mean/Average value WP=4.75, WB=1.875, PLN=7.375, UK=21.375, SP=4.625, BI=3.625, others =1.375.



Graph-5: Purpose of visit to the Library

Analysis of the Table 12 exposed that, the respondents consisting of Students, Research Scholars and Faculties exercised multiple options among different given variables as shown in the table and hence, for this part of the study n=360 instead of 237. Further analysis of the table showed that the respondents constituting 171 (48%) out of 360 preferred to update knowledge

followed by 59 (16%) for preparing lecture notes with and 38 (10%) for writing paper respectively. Moreover, purpose of visiting the library, NIT Manipur 61 (17%) stands at the apex followed by NIT Silchar with 55(15%) and NIT Mizoram 51 (14%) respectively and thus, coming to 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> in the ranking order.

Further, correlation was deduced between the two variables such as, Writing Paper and Writing Book, Preparing Lecture Note and Update Knowledge, Starting a Project and Browse Internet.

The equation for the correlation coefficient is:

$$Correl(X, Y) = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sqrt{\sum (x - \bar{x})^2 \sum (y - \bar{y})^2}}$$

Where,

$\bar{x}$  and  $\bar{y}$  are the sample means AVERAGE(array1) and AVERAGE(array2).

While deducing a correlation between starting a project and browsing internet, it was found to be positive which comes to 0.441384 but correlation between writing a paper and writing a book shows negative i.e, -0.18932, followed by preparing lecture note and updating knowledge which is again negative i.e, -0.03343.

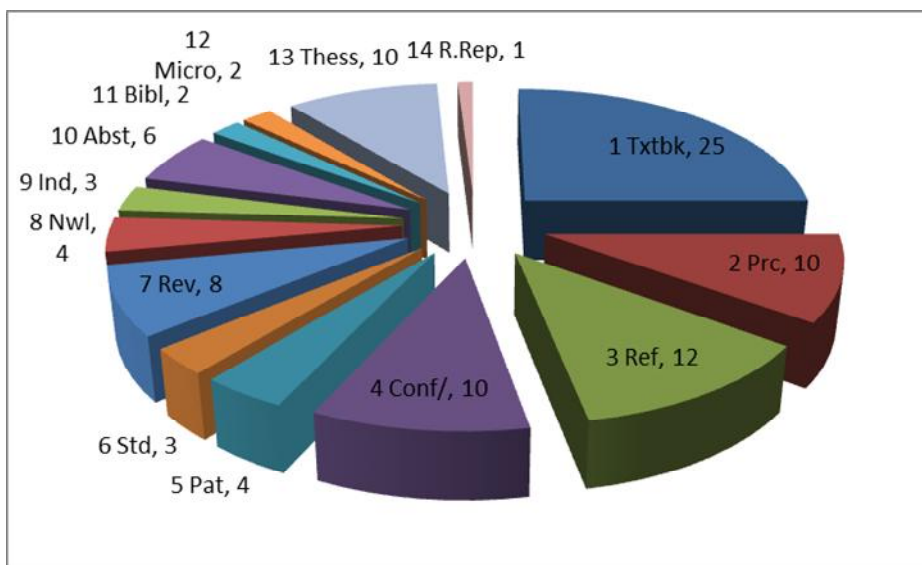
## 5.8 Analysis by Searching of Preferred documents

Documents containing valuable contents are essential for the users as it provides valuable information. The users prefer to look for such documents to quench their information thirst. The respondents placed their options for searching of preferred documents which has been broadly grouped into 14 variables. They exercised multiple options for searching of documents of their choice. Hence, the 'n' value for the component has gone up to 512 instead of 237. Data relating to the component is placed in Table-13 for analysis and also supported with Graph-6 for understanding.

Table-13: Documents preferred to search

Sl No.	Purpose	NIT S	NIT Sk	NIT M	NIT Mi	NIT N	NIT A	NIT Ag	NIT Me	Total	%
1.	Txtbk	25	26	22	25	27	21	25	23	<b>194</b>	<b>38</b>
2.	Prc	10	4	6	10	2	2	8	4	<b>46</b>	<b>9</b>
3.	Ref	12	7	12	9	9	4	9	6	<b>68</b>	<b>13</b>
4.	Conf/	10	1	6	6	2	1	2	2	<b>30</b>	<b>6</b>
5.	Pat	4	2	4	1	0	0	1	1	<b>13</b>	<b>3</b>
6.	Std	3	2	6	4	0	0	3	3	<b>21</b>	<b>4</b>
7.	Rev	8	2	5	5	3	0	4	0	<b>27</b>	<b>5</b>
8.	Nwl	4	1	7	10	5	2	0	5	<b>34</b>	<b>7</b>
9.	Ind	3	2	2	1	0	0	0	1	<b>9</b>	<b>2</b>
10.	Abst	6	1	4	4	0	0	2	1	<b>18</b>	<b>3</b>
11.	Bibl	2	1	2	1	1	1	1	0	<b>9</b>	<b>2</b>
12.	Micro	2	0	2	0	0	0	2	0	<b>6</b>	<b>1</b>
13.	Thess	10	1	7	5	0	2	1	2	<b>28</b>	<b>5</b>
14.	R.Rep	1	0	0	3	2	2	0	1	<b>9</b>	<b>2</b>
	Total	<b>100</b>	<b>50</b>	<b>85</b>	<b>84</b>	<b>51</b>	<b>35</b>	<b>58</b>	<b>49</b>	<b>512</b>	<b>100</b>
	%	<b>20</b>	<b>10</b>	<b>17</b>	<b>16</b>	<b>10</b>	<b>7</b>	<b>11</b>	<b>10</b>	<b>101 or 100</b>	

Abb: Txtbk- Textbook, Prc- Periodicals, Reef- Reference, Conf/- Conference and Seminars, Pat- Patents, Std- Standard, Rev- Reviews, Nwl- Newsletters, Ind- Index, Abst- Abstract, Bibl- Bibliographies, Micro- Micrographics, Thess- Theses and Dissertations, R.Rep- Res. Report. Heren=512. N= 237



Graph- 7: Documents preferred to search

While analyzing the Table-13, it revealed that out of 14 variables, Text books are the most preferred form of documents searched by the respondents among all 8 NIT libraries covered under study. 194 (38%) out of 512 preferred searching of Text books followed by 68(13%) who preferred to search reference books and 34(7%) newsletters respectively. It otherwise means that, all 8 NIT Libraries are updating their collections with user-centric text books and the users find their need-based information. However, other documents are also given due importance by the users while searching information for other academic purposes.

### 5.9 Analysis by Preference of information sources

Use of information by the users in the library depends on the types of services provided by the library. Table 14 reflects the data on the preference of information sources by the users of all 8 NIT libraries under study. This component is divided into five variables and the users exercised multiple options while searching the information sources. Hence, for the present facet, the total number of users became 341 instead of 237. This is also supplemented with the correlation between different information sources which has been shown in Graph- 8 for clear understanding. Further, the correlations between different sources have been shown in Table-14A which is supplemented with Graph- 8-A for clear vision.



Table-14: Preference of information sources

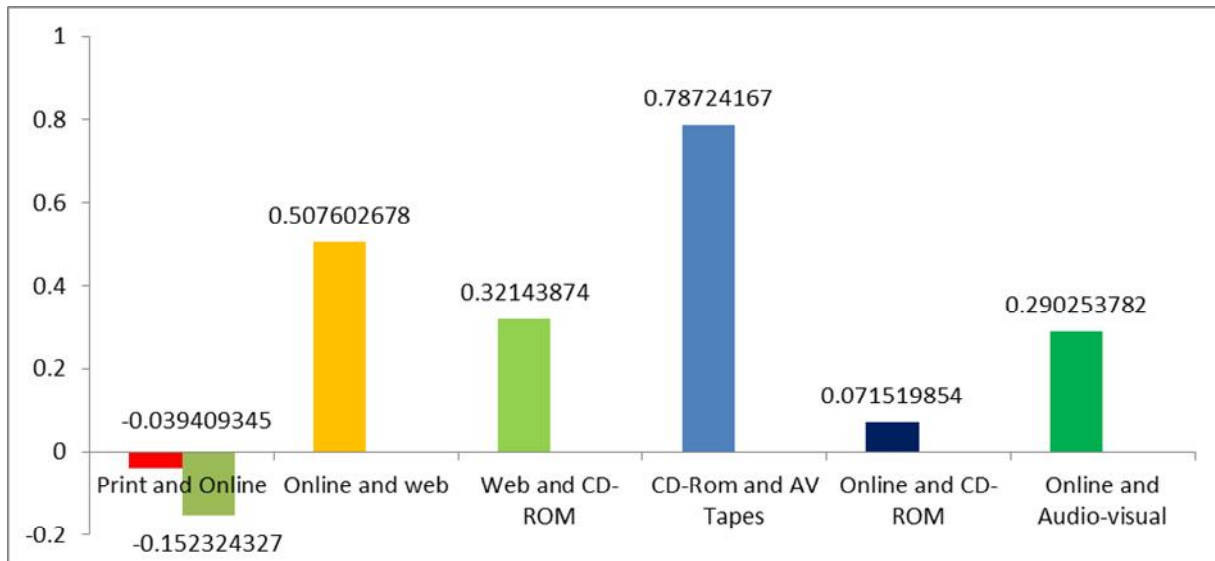
SI No.	Info Sources	NIT S	NIT Sk	NIT M	NIT Mi	NIT N	NIT A	NIT Ag	NIT Me	Total	%
1.	Printed	20	21	19	21	17	16	23	18	<b>155</b>	<b>45</b>
2.	Online	16	15	14	9	12	13	10	7	<b>96</b>	<b>28</b>
3.	Web	7	6	9	4	3	9	6	5	<b>49</b>	<b>14</b>
4.	CD-ROM	1	1	2	1	0	0	1	1	<b>7</b>	<b>2</b>
5.	AV tapes	3	5	9	4	3	3	4	3	<b>34</b>	<b>10</b>
	<b>Total</b>	<b>47</b>	<b>48</b>	<b>53</b>	<b>39</b>	<b>35</b>	<b>41</b>	<b>44</b>	<b>34</b>	<b>341</b>	<b>99 or 100</b>
	<b>%</b>	<b>14</b>	<b>14</b>	<b>15</b>	<b>11</b>	<b>10</b>	<b>12</b>	<b>13</b>	<b>10</b>	<b>99 or 100</b>	

Here, n=341, N= 237. Abb. AV- Audio-Visual

Table 14 on analysis found that, out of five variables, major chunk of users constituting 155 (45%) out of 341 preferred their interest for print sources followed by 96(28%) online sources and 49 (14%) web sources. Further the table found that, 34 (10%) preferred to use audio/visual aids while, 7 (2%) opted for CD-ROM . It otherwise means that, all 8 NIT libraries covered under study are equipped with adequate user-centric collections. The result signifies to a healthy sign for the users who are getting inclined to use the electronic information sources other than print information sources.

Table-14A- Correlation between different sources

Print and Online	-0.039409345
Online and web	0.507602678
Web and CD-ROM	0.32143874
CD-Rom and AV Tapes	0.78724167
Online and CD-ROM	0.071519854
Online and Audio-visual	0.290253782
Print and Web	-0.152324327



Graph- 7: Searching of preferred information sources

Table- 14A shows the calculation of correlation and it could be found that, there is a positive correlation between CD-ROM and Audio Visual Tapes that comes to 0.78724167, while Online source and Web as source it is 0.507602678, Web and CD-ROM 0.32143874 and Online and CD-ROM 0.071519854 but, between print sources and online sources and print source and web as source it comes to -0.039409345 and -0.152324327 respectively and hence, they are negatively correlated.

### 5.10 Analysis by purpose of Internet Access

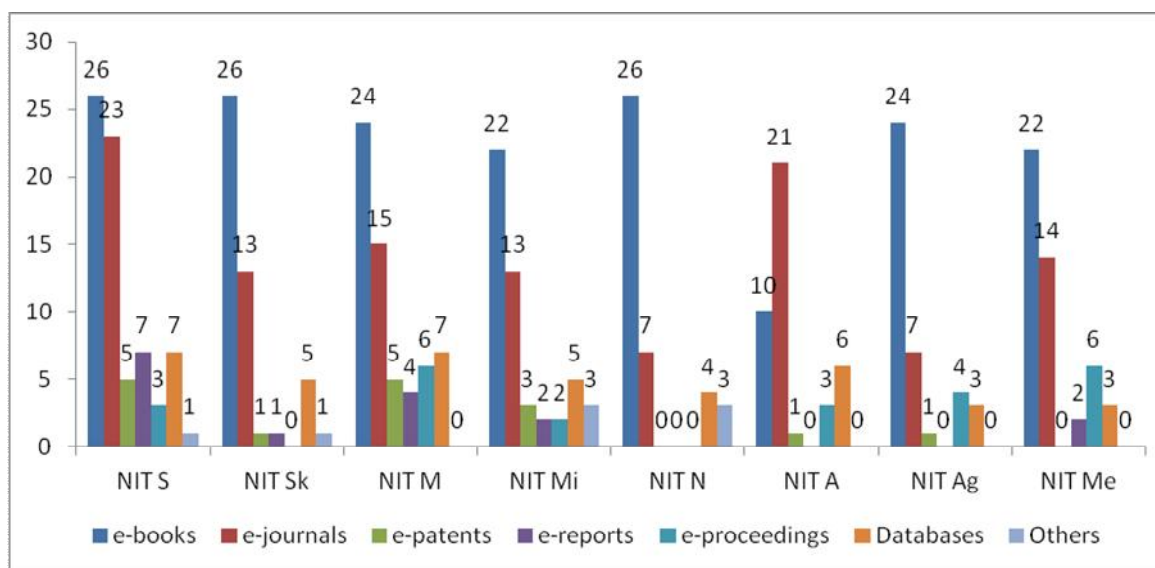
Internet has become a boon to the academic community as it provides access to wide range of information in one platform. Data relating to the purpose of internet access by the respondents for the given study has been reflected in Table-15 for analysis and it is supplemented with Graph-8. This component comprises seven variables where, the respondents expressed their multiple choices leading thereby, the number of respondents to 397 instead of 237. The correlations between different variables has been shown in Table-15A and supplemented with Graph-8A for clear understanding.

Table-15: Purpose of Internet Access

Sl No.	Info Sources	NIT S	NIT Sk	NIT M	NIT Mi	NIT N	NIT A	NIT Ag	NIT Me	Total	%
1.	e-books	26	26	24	22	26	10	24	22	180	45
2.	e-journals	23	13	15	13	7	21	7	14	113	28
3.	e-patents	5	1	5	3	0	1	1	0	16	4
4.	e-reports	7	1	4	2	0	0	0	2	16	4
5.	e-proceedings	3	0	6	2	0	3	4	6	24	6
6.	Databases	7	5	7	5	4	6	3	3	40	10
7.	Others	1	1	0	3	3	0	0	0	8	2
	<b>Total</b>	<b>72</b>	<b>47</b>	<b>61</b>	<b>50</b>	<b>40</b>	<b>41</b>	<b>39</b>	<b>47</b>	<b>397</b>	
	<b>%</b>	<b>18</b>	<b>12</b>	<b>15</b>	<b>12</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>12</b>	<b>99 or 100</b>	<b>99 or 100</b>

n=397, N= 237, Source: Questionnaire

Abb. NIT S=Silchar, NIT Sk= Sikkim, NIT M= Manipur, NIT Mi= Mizoram, NIT N=Nagaland, NIT A= Arunachal Pradesh, NIT Ag= Agartala, NIT Me= Meghalaya

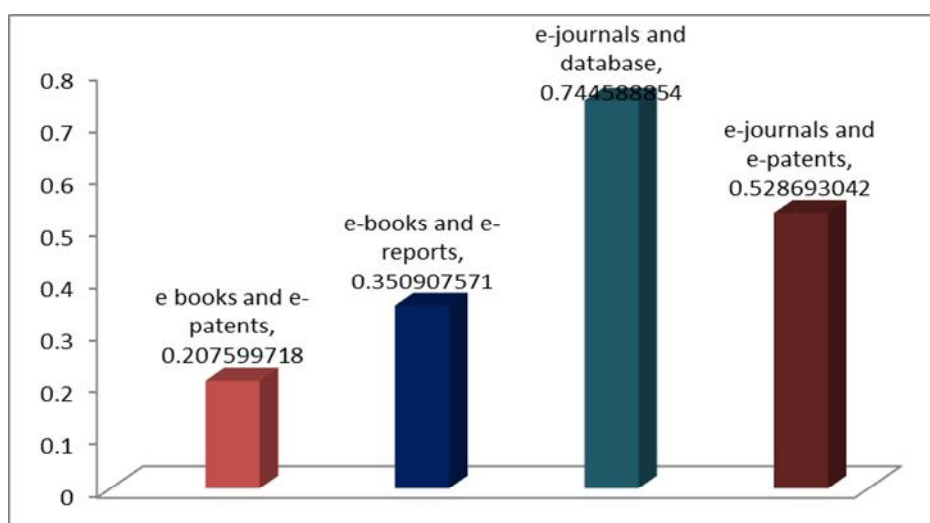


Graph- 8: Purpose of Internet Access

Analysis of the Table 15 revealed that, 180 (45%) users out of 397 favoured e-books followed by e-journals by 113(28%) users and database by 40(10%) users respectively. It otherwise means that, e-books are gaining momentum among the users of the NIT libraries under study. It can be said that, the users are quite literate enough to access electronic resources for advancement of their studies and research. This also shows that, all 8 NIT libraries are also providing e-resource services to their clientele.

Table-15A: Correlation between variables

Sl.No.	Correlation	Value
1	e-books and e-patents	0.20799718
2	e-books and e-reports	0.350907571
3	e-journals and database	0.744588954
4	e-journals and e-patents	0.528693042
5	e-books and e-journals	-0.18446



Graph-8A: Correlations between variables

While deducing the correlation it could be found that, in between e-books and e-patents it comes to 0.20799718 while, between e-books and e-reports, it is 0.350907571, 0.744588954 between e-journals and database and 0.528693042 between e-journals and e-patents. This depicts that, they are positively correlated. But while drawing the correlation between e-books and e-journals, it comes to -0.43263 and also between e-books and e-proceedings, it is -0.18446. The standard deviation is 8.25123.

### 5.11 Analysis by location of Access to e-resources

Location of access to e-resources by the users happens to be one of the dominating areas of the library services. The users need multiple outlets to access e-resources to enhance their study and research. The data indicating the location of e-resources by the users covered under the study is selected in Table 16 and supplemented with Graph-9 which gives a clear picture. As the users access e-resources in multiple places, the 'n' value becomes 285 instead of 237.

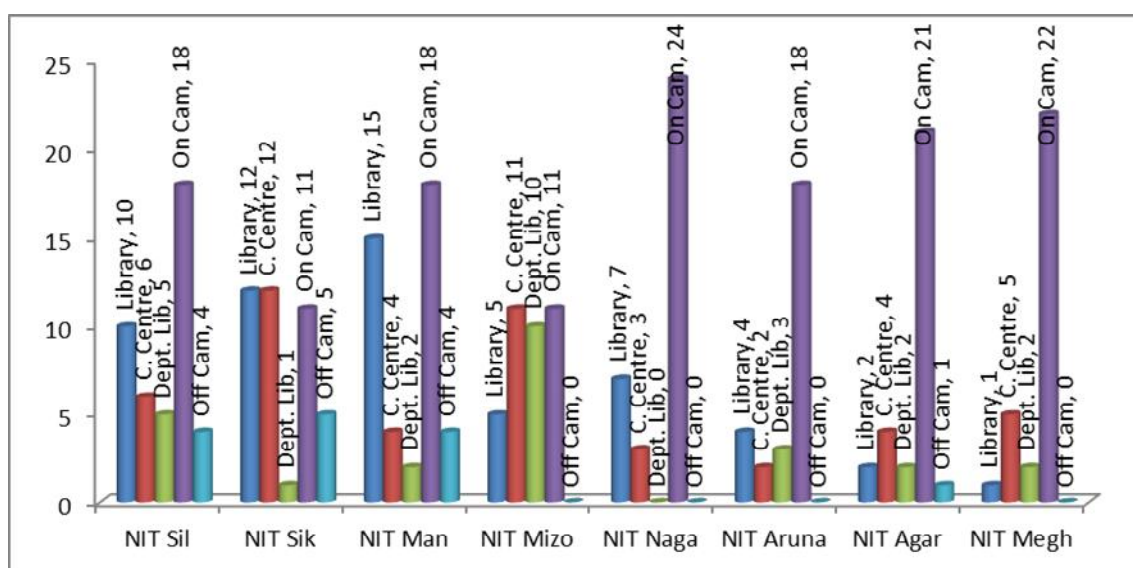
Table- 16: Analysis by location of access to e-resources

Sl No.	Place	NIT S	NIT Sk	NIT M	NIT Mi	NIT N	NIT A	NIT Ag	NIT Me	Total	%
1.	Library	10 (18%)	12 (21%)	15 (27%)	5 (9%)	7 (12%)	4 (7%)	2 (3%)	1 (2%)	56	20
2.	C. Centre*	6 (13%)	12 (25%)	4 (8%)	11 (23%)	3 (6%)	2 (4%)	4 (8%)	5 (11%)	47	16
3.	Dept. Lib	5 (20%)	1 (4%)	2 (8%)	10 (40%)	0	3 (12%)	2 (8%)	2 (8%)	25	9
4.	On Cam*	18 (12%)	11 (8%)	18 (12%)	11 (8%)	24 (17%)	18 (12%)	21 (15%)	22 (15%)	143	50
5.	Off Cam*	4 (28%)	5 (36%)	4 (28%)	0	0	0	1 (7%)	0	14	5
	<b>Total</b>	<b>43</b>	<b>41</b>	<b>43</b>	<b>37</b>	<b>34</b>	<b>27</b>	<b>30</b>	<b>30</b>	<b>285</b>	<b>100</b>
	<b>%</b>	<b>15</b>	<b>14</b>	<b>15</b>	<b>13</b>	<b>12</b>	<b>9</b>	<b>11</b>	<b>11</b>	<b>100</b>	

Abb: C.Centre\*-Computer Centre, On Cam\*- On Campus, Off Cam\*- Off Campus.

n=285, N= 237

Note- <.5 has been rounded to previous digit, >.5 has been rounded to the next digit



Graph- 9: Location of access to e-resources

While analysing the Table-16, it is revealed that out of 285 respondents, 143 (50%) access e-resources on-campus which otherwise can be viewed that, the library of the institutes provide wi-fi within the campus. The second highest place is the library from where 56 (20%) followed by computer centre 47 (16%) as the third preferred place access e-resources. Further analysis revealed that, out of 143 users who access e-resources on-campus, NIT Nagaland

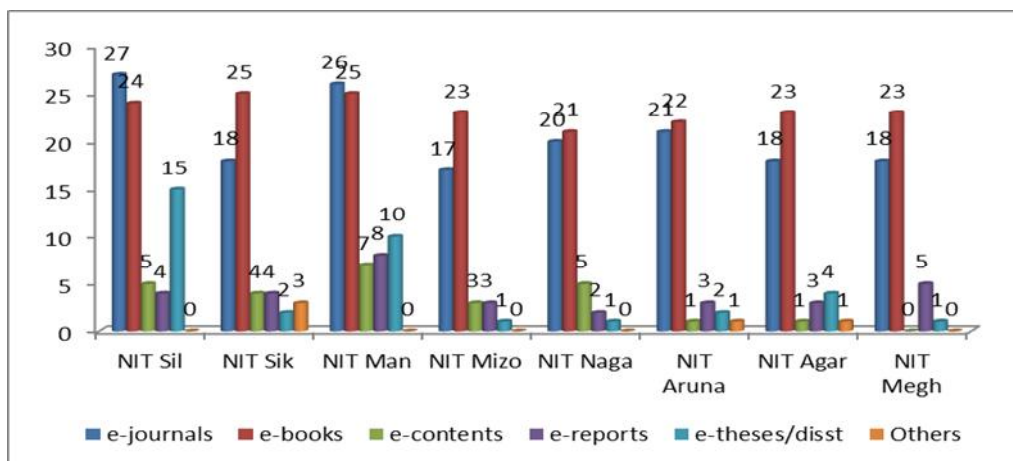
constitutes the highest i.e, 24 (17%) followed by NIT Meghalaya 22(15%) and NIT Agartala 21(15%) respectively. Again, out of 56 respondents who access e-sources from the Library, NIT Manipur is the at the top as 15 (27%) out of 56 followed by NIT Sikkim 12(21%) and NIT Silchar 10(18%) respectively access e-resources.

### 5.12 Analysis by choice of access to e-resources

E-resources available in multiple forms have become the preferred shape of information sources among the users as it provides update and instant information to its users for various academic works. The libraries under study provide multiple electronic sources to the users and broadly it is divided into six variables. Data relating to the use of electronic resources obtained through the questionnaire have been placed in Table-17 followed by Graphs- 10. Further, as the users exercised multiple options of their choice to access various types of e-resources, the 'n' value came to 450 instead of 237. The statistical analysis for the present component is placed in Table- 17A supplemented with the Graph-10A showing the correlation between the types of e-resources.

Table- 17: Choice of access to e-resources

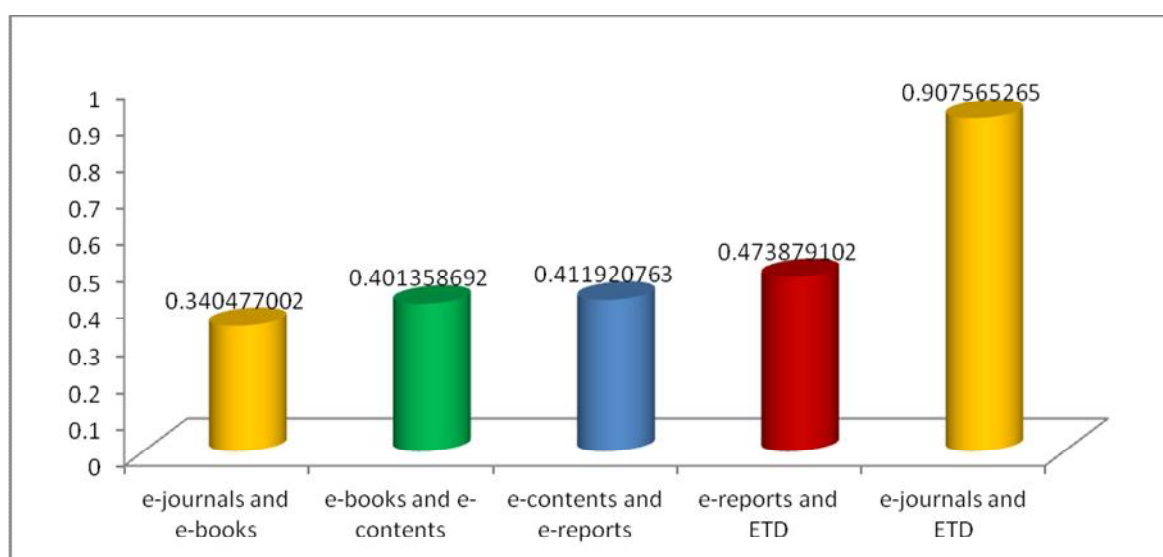
Sl No.	Types of e-resources	NIT S	NIT Sk	NIT M	NIT Mi	NIT N	NIT A	NIT Ag	NIT Me	Total	%
1.	e-journals	27	18	26	17	20	21	18	18	165	37
2.	e-books	24	25	25	23	21	22	23	23	186	41
3.	e-contents	5	4	7	3	5	1	1	0	26	6
4.	e-reports	4	4	8	3	2	3	3	5	32	7
5.	ETD	15	2	10	1	1	2	4	1	36	8
6.	Others	0	3	0	0	0	1	1	0	5	1
	<b>Total</b>	<b>75</b>	<b>56</b>	<b>76</b>	<b>47</b>	<b>49</b>	<b>50</b>	<b>50</b>	<b>47</b>	<b>450</b>	<b>100</b>
	<b>%</b>	<b>17</b>	<b>12</b>	<b>17</b>	<b>10</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>10</b>	<b>99 or 100</b>	



Graph – 10: Choice of access to e-resources

Table 17A: Statistical Analysis of access to e-resources

Sl No.	Types of e-resources	Mean	St. Dev.	Correlation				
				e-journals and e-books	e-books and e-contents	e-contents and e-reports	e-reports and ETD	e-journals and ETD
1.	e-journals	20.625	3.852179	0.340477	0.401359	0.411921	0.473879	0.907565
2.	e-books	23.25	1.38873					
3.	e-contents	3.25	2.434866					
4.	e-reports	4	1.85164					
5.	ETD	4.5	5.209881					
6.	Others	0.625	1.06066					



Graph-10A: Correlation between different types of e-resources

Analysis of the Table 17 revealed that e-books are the most preferred resources among the respondents compared to other electronic resources. The analysis found that, 186(14%) respondents out of 450 preferred to use e-books followed by 165(37%) respondents who preferred to use the e-journals and 36(8%) respondents favoured to use Electronic Theses and Dissertations. However, the use of other electronic resources are equally are given importance by the respondents of all NIT libraries under study. Again, from among the NIT Libraries, NIT Library Manipur with 76 respondents are the highest number of respondents which comes to 17% followed by NIT Library Silchar where 75(17%) used the e-resources.

The statistical analysis placed in Table 17A visualised that the mean value for e-books comes to 23.25 followed by 20.625 for e-journals and 4.5 for ETD. The correlation between the various e-resources shows that e-journals and ETD has 0.907565 followed by 0.473879 for e-reports and ETD and 0.411921 for e-contents and e-reports. The correlation between the other e-resources has a positive correlation. Overall it can be said that the e-resources are positively correlated.

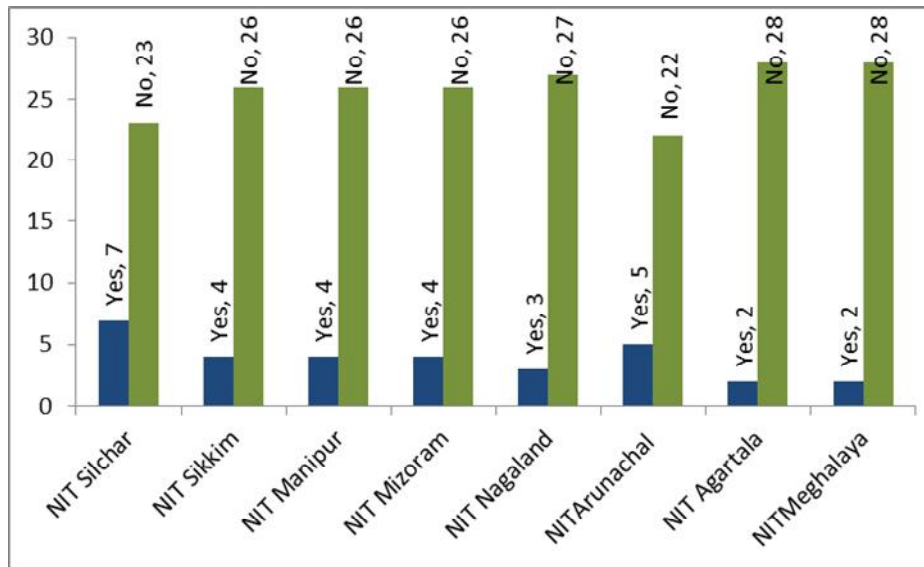
### 5.13 Analysis by access to e-Shodh Sindhu Consortium and INDEST Consortium.

E-Soudh Sindhu Consortium and INDEST Consortium are the most important consortia for allowing access to electronic journals to the research communities. It is therefore, pertinent to know that, whether the users of the libraries covered under the study are being provided with consortia based e-resources. Data relating to the access of consortia bases e-resources is placed in Table-18 for analysis which has been supported with Graph-11.

Table- 18: Access to e-Shodh Sindhu Consortium and INDEST Consortium.

SI No.	Institute	Yes	%	No	%	Total
1.	NIT Silchar	7	23	23	77	30
2.	NIT Sikkim	4	13	26	87	30
3.	NIT Manipur	4	13	26	87	30
4.	NIT Mizoram	4	13	26	87	30
5.	NIT Nagaland	3	10	27	90	30
6.	NIT Arunachal	5	19	22	81	27
7.	NIT Agartala	2	7	28	93	30
8.	NIT Meghalaya	2	7	28	93	30
<b>Total</b>		<b>31</b>	<b>13</b>	<b>206</b>	<b>87</b>	<b>237</b>





Graph-11: Access to e-Shodh Sindhu Consortium and INDEST Consortium

While analyzing the Table-18 it is found that, out of the 237 respondents, NIT Silchar is found to have the highest rate i.e, 7 (23%) who use consortia based e-resources followed by 5 (19%) in NIT Arunachal Pradesh . The highest rate of negative view is from NIT Agartala and NIT Meghalaya both having 23 i.e., 93% each. Therefore, the study revealed that adequate training need to be provided to the users so as to make them use of the consortium and to access various electronic journals subscribed by the library.

#### 5.14 Analysis by Network services rendered by the Libraries

The network services provided by different NIT libraries are placed in Table-19 and these are the best practices adopted in the respective library. The network services provided by the libraries under study have been broadly divided into 19 variables. The data were obtained from the librarian's questionnaire of 7 NIT Libraries excepting NIT Agartala.

Table 19: Networked Services rendered by the Libraries

S.No	NIT S	NIT Sk	NIT M	NIT Mi	NIT N	NIT A	NIT Ag	NIT Me	TOTAL
EDI	1	1	0	0	0	0	0	0	2(4%)
Auto Cat	1	1	0	1	1	1	0	0	5(9%)
Auto Cir	1	1	0	1	1	1	0	0	5(9%)
Vir Ref	0	1	0	0	0	0	0	0	1(2%)
E-CAS	1	0	0	0	0	1	0	0	2(4%)
On Datb	1	1	1	0	1	1	0	1	6(11%)
CD etc	1	1	0	1	0	1	0	0	4(7%)
ETD	1	0	0	0	0	0	0	0	1(2%)
MulDt	1	1	0	0	0	0	0	0	2(4%)
Standard	1	0	0	0	1	1	0	0	3(6%)
Internet	1	1	1	1	1	1	0	1	7(13%)
Email	1	1	1	0	1	1	0	1	6(11%)
Vid TC	0	0	1	0	1	0	0	0	2(4%)
Fax	0	0	1	0	0	0	0	0	1(2%)
Vid Tele	0	0	0	0	0	0	0	0	0 (0)
Web DD	1	1	0	1	0	0	0	0	3(6%)
Support	1	1	0	0	0	1	0	0	3(6%)
<b>Total</b>	<b>13</b>	<b>11</b>	<b>5</b>	<b>5</b>	<b>7</b>	<b>10</b>	<b>0</b>	<b>3</b>	<b>54</b>
%	24	20	9	9	13	19	0	6	100

**Abb:** EDI- Electronic Data Interchange, Auto Cat-Automation Catalogue, Auto Cir-Automation Circulation, Vir Ref- Virtual Reference, E-CAS-Electronic Current Awareness Service, On Datb-Online Database, CD –Compact Disk, ETD- Electronic Theses and Dissertations, MulDt-Multimedia Databases, Email-Electronic Mail, Vid TC- Video Teleconferencing, Fax- Facsimile Transmission, Vid Tele- Videotext or Teletext, Web DD- Web based document delivery.

Table 19 on analysis found that the all NIT libraries use different technologies to provide network services for greater academic benefits of the users. It could be found from the table that, NIT Library Silchar provides the highest network services 13(24%) out of 54 which ranks the 1<sup>st</sup> followed by 11(20%) by NIT library Sikkim in the 2<sup>nd</sup> rank and 10(19%) by NIT library Arunachal Pradesh in the 3<sup>rd</sup> rank. While analysing the different network services it could be found that, internet service is being provided by all 7 NIT libraries which comes to 13%

followed by 6 (11%) each for Online Database and email services. Further, Automated Cataloguing and Automated Circulation services are provided by 5(9%) each NIT libraries. Overall it can be said that, the all 7 NIT libraries in North East are making positive effort to provide network based services to the users.

### 5.15 Analysis by Full text database available in the Libraries

The full text database in NIT libraries provides adequate educational support for teaching, learning and research. This component also equally adds value for the best practices adopted in the respective library of NIT in North East Region. The scholar grouped into 12 different international databases for the present study and the data collected from various NIT libraries has been shown in Table-20 for analysis.

Table - 20: Full-text Database available in the Libraries

Databases	NIT S	NIT Sk	NIT M	NIT Mi	NIT N	NIT A	NIT Ag	NIT Me	Total
Sc Direct	1	1	1	0	1	1	0	1	6 (15%)
IEEE	1	1	1	1	1	1	0	1	7 (18%)
ACM DL	1	0	0	0	0	0	0	1	2 (5%)
SprgLnk	1	1	1	1	1	0	0	1	6 (15%)
Proquest	1	0	0	0	0	0	0	0	1(3%)
ASME	1	0	1	1	1	1	0	1	6 (15%)
ASCE	1	-	1	1	1	1	0	1	6 15%)
Standards	1	1	0	0	0	0	0	0	2 (5%)
J-Gate	1	0	0	1	1	0	0	0	3 (8%)
Nature	1	0	0	0	0	0	0	0	1 (3%)
<b>Total</b>	<b>10</b>	<b>4</b>	<b>5</b>	<b>5</b>	<b>6</b>	<b>4</b>	<b>0</b>	<b>6</b>	<b>40</b>

Abb.Sc Direct- Science Direct, IEEE-Institute of Electronic and Electrical Engineering, ACM DLAssociation for Computing Machinery Digital Library-,SprgLnk-Springer Link, ASME-American Society of Mechanical Engineers, ASCE-Engineers Academic and Science Societies.

Table 20 on analysis found that out of 12 different international full text database IEEE is the most subscribed international database which constitute 7(18%) and stands at the top which is subscribed by all the NIT libraries, and since ASTM and JCCC have zero value, it has not been highlighted in the above Table. This is followed by the other demanding full text database i.e., Science Direct, Springer Link, ASME, ASCE which are being subscribed by NIT Silchar, NIT Sikkim, NIT Manipur, NIT Nagaland, NIT Arunachal Pradesh and NIT Meghalaya which comes to 6 each (15%). It could be further found that J-Gate is subscribed by NIT Silchar, NIT

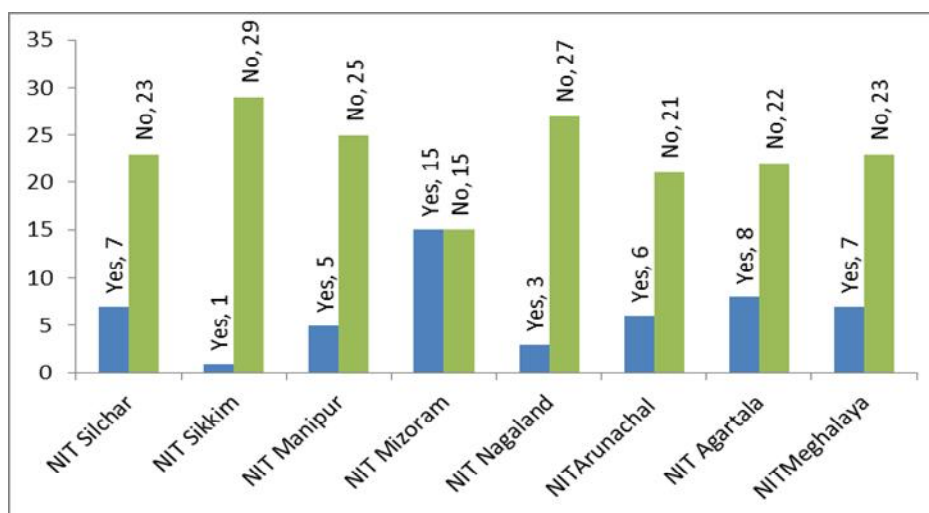
Mizoram and NIT Nagaland. Again, NIT Silchar from among the all 8 NITs in North East is subscribing to 10 international database followed by NIT Nagaland and NIT Meghalaya which are 6 each. The overall analysis revealed that the NIT libraries are making efforts to subscribe the international database for the academic development of the institutes.

### 5.16 Analysis by difficulties faced while using library software

With the emergence Information Communication and Technology (ICT) in the academic environment the library also upgrade its services through the implementation of library software for the benefit of the users as well as the staffs. The data reflecting whether users faced problems while using the library software in different libraries covered under the study are shown in Table 21 which is supported with Graph-12 for clear understanding.

Table -21: Difficulties faced while using library software

Sl No.	Institute	Yes	%	No	%	Total
1.	NIT Silchar	7	23	23	77	30
2.	NIT Sikkim	1	3	29	97	30
3.	NIT Manipur	5	17	25	83	30
4.	NIT Mizoram	15	50	15	50	30
5.	NIT Nagaland	3	10	27	90	30
6.	NIT Arunachal	6	22	21	78	27
7.	NIT Agartala	8	27	22	73	30
8.	NIT Meghalaya	7	23	23	77	30
<b>Total</b>		<b>52</b>	<b>22%</b>	<b>185</b>	<b>78%</b>	<b>237</b>



Graph -12: Difficulties faced while using library software

Table-21 on analysis exposed that the respondents are facing problems while using the library software. Out of 237 respondents 185 (78%) revealed the use of library softwares as positive i.e, they are comfortable while, 52 (22%) users viewed negative i.e, they are uncomfortable with the library software. Further analysis reveals that NIT Mizoram is top in the list to give negative views which means that the users face problems i.e, 15 (50%) followed by 8 (27%) in NIT Agartala and 7 (23%) each in NIT Silchar and NIT Meghalaya. However, 29(97%) in NIT Sikkim is the highest followed by 27(90%) NIT Nagaland and 25(83%) NIT Manipur who viewed that, they do not encounter with any problem.

### 5.17 Analysis by Type of Library Software used in the Libraries

The NIT libraries of North East implement with different library software for various operations in the library services. The institutes have their own websites who also provide internal links and external links to the users to access the resources. However, NIT Nagaland uses its campus management software for library operations. Further, some of the NIT libraries are still on the process of automation. Data relating to the use of various library softwares used by the NIT libraries is placed in Table-22 for analysis.

Table- 22: Type of Library Software used in the Libraries

S.No	Name of the library	Use of Library Software							
		LIBSYS	Maitrayee	SOUL	TLMS	SLIM	KOHA	LIBMAN	ikollege
1.	NIT S	1	-	-	-	-	-	-	-
2.	NIT Sk	1	-	-	-	-	-	-	-
3.	NIT M	-	-	1	-	-	-	-	-
4.	NIT Mi	-	-	-	-	-	-	1	-
5.	NIT N	-	-	-	-	-	-	-	1
6.	NIT A	1	-	-	-	-	-	-	-
7.	NIT Ag	-	-	-	-	-	-	-	-
8.	NIT Me	-	-	-	-	-	1	-	-
	<b>TOTAL</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>

The different library software used by the institutes are shown in the above Table 22, where LIBSYS is the most used library software among the libraries under study where 3(three) libraries such as NIT Sikkim, NIT Arunachal Pradesh and NIT Silchar are using the software.

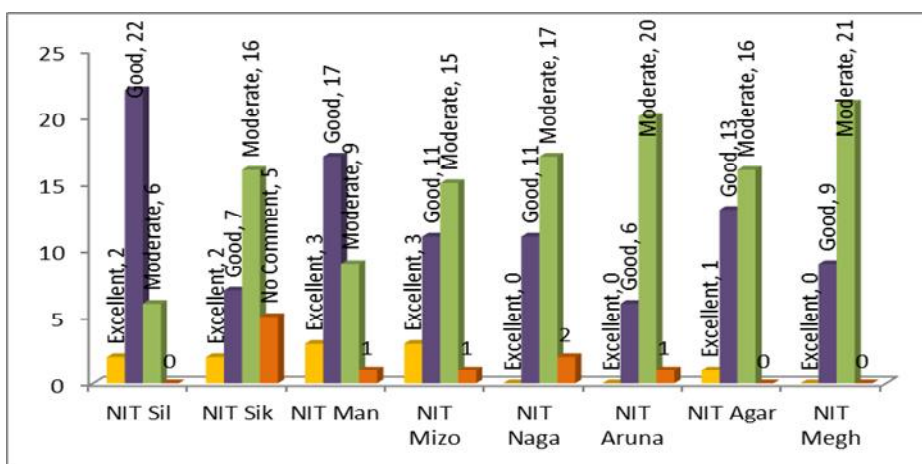
SOUL is implemented by NIT Manipur and LIBMAN software by NIT Mizoram. NIT Nagaland is facilitated with user friendly campus management software which also manages and operates the library activities which is called ikollege software.

### 5.18 Analysis by Satisfaction of Library services

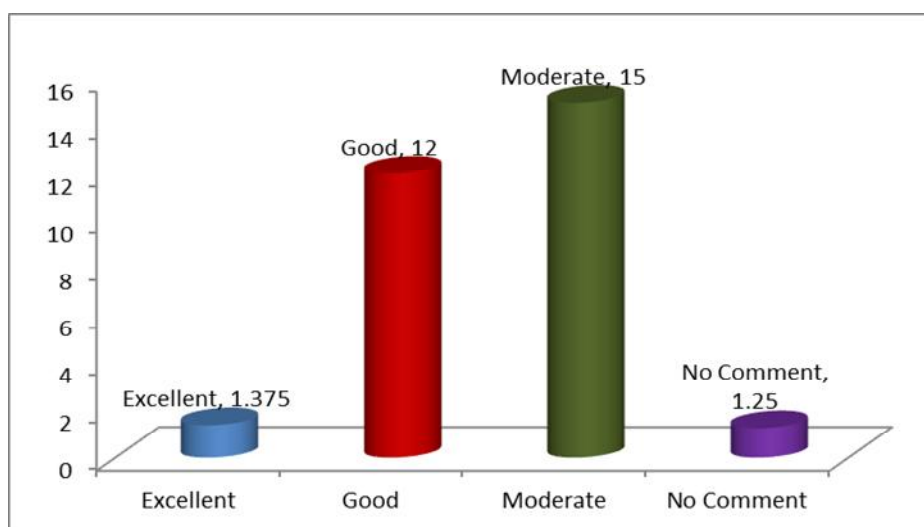
The collection development forms the basis of library resources. The rate of satisfaction of library services is one of the factors for determining the standard of the library. The library services are judged by the opinion of the respondents. The respondents exercised the level of satisfaction from among the four variables given in the questionnaire. The data for the component is reflected in Table 23 for analysis which is supplemented with a Graph- 13 and 13-A for clear vision of the component.

Table-23: Satisfaction of Library services

Sl No.	Services	NIT S	NIT Sk	NIT M	NIT Mi	NIT N	NIT A	NIT Ag	NIT Me	Total	%	Mean
1.	Excellent	2	2	3	3	0	0	1	0	11	5	1.375
2.	Good	22	7	17	11	11	6	13	9	96	40	12
3.	Moderate	6	16	9	15	17	20	16	21	120	51	15
4.	No Comment	0	5	1	1	2	1	0	0	10	4	1.25
	<b>Total</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>27</b>	<b>30</b>	<b>30</b>	<b>237</b>	<b>100</b>	
	<b>%</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>11</b>	<b>13</b>	<b>13</b>	<b>100</b>		



Graph-13: Satisfaction of Library services



Graph-13A: Mean value of Library services

While analyzing the above Table-23 , it is revealed that, 120 (51%) out of 237 respondents of all 8 NIT Libraries in North East Region covered under the study have opined library services as Moderate followed by 96 (40%) who opined as Good and 11 (5%) as Excellent. However, very few i.e., 10 (4%) of the respondents did not reveal their comments on their satisfaction about library services. The mean values with regard to library services shows 15 as moderate while, 12 as Good, and 1.375 as Excellent.

### 5.19 Findings:

The following findings for the present study were drawn after due analysis of all the tables.

- Table 7 on analysis shows that the response rate of the questionnaire was 30 (100%) out of 30 from 8 NITs covered under study while, for NITA i.e., NIT Arunachal Pradesh, it was 27 out of 30 (90%) for . Further, the sample representation of the users of 7 NIT's such as Silchar, Mizoram, Sikkim, Agartala, Nagaland, Manipur and Meghalaya is 13% while for Arunachal Pradesh, it is 11%. Further, the sample representation of the librarian also comes to 13% in all 7 NIT libraries excepting NIT Library at Agartala and thus, the response rate of the questionnaires by the librarians comes to 88% as NITLibrary Agartala not responding to the questionnaire.
- The data relating to the respondents from all the categories of 8 NIT Libraries including the librarian of the respective institute is placed in Table-8 which revealed that, out of the category wise respondents, Students communities constitute the highest i.e.,146 (62%) out of 237, followed by Faculty members 55 (24%) and Research Scholars 36 (16%). The percentage calculation of the respondents out of the total respondents of the

respective institution show that, the highest rate of respondents are the students having each with 20 (67%) from NIT Sikkim, NIT Manipur and NIT Nagaland and the highest rate among the faculties are from NIT Sikkim, NIT Mizoram, NIT Meghalaya having each with 8 (27%) and NIT Arunachal Pradesh 8 (30%) among all the eight NIT Libraries. The statistical inference shows that, the mean value for the students comes to highest i.e, 18.25 followed by 6.875 for faculties, and 4.5 for scholars. Again, the SD for Students, Faculties, and Research scholars comes to 1.908627031, 1.356202682, and 1.309307341 respectively.

- Analysis relating to gender obtained under the study revealed from Table 9 that, out of 237 respondents, 136 (57%) constitute the male while, 101(43%) constitute female. Further the representative sample of institution-wise shows that NIT Sikkim is the highest with 23 (77%) followed by NIT Manipur and NIT Mizoram each with 21 (70%) . Female representative sample shows that NIT Nagaland is the highest with 22 (73%) and followed by NIT Meghalaya and NIT Agartala with 18 (60%) and 14 (47%) respectively. Further, while calculating the representative sample of both male and female, it was found that NIT Sikkim constitute the highest i.e., 17% followed by NIT Manipur and NIT Mizoram each with 15% and NIT Arunachal Pradesh and NIT Agartala with 12%. Likewise, the representative sample for female comes to 22% at NIT Nagaland which is the peak followed by 18% in NIT Meghalaya and 14% NIT Agartala. The statistical calculation shows that, the mean value for men is 17 while for female it is 12.625. The Standard Deviation for male is 5.014265364 and for female, it is 5.125217765. Further, for both male and female, the Standard Deviation is 5.394055.
- Table 10 with regard to library visit by the users of all 8 NITs covered under the study revealed that, all the users constituting Students, Research Scholars and Faculties of the said NITs visit the library in toto i.e, 100% and this is a very healthy sign for the library. This shows that, the users are more concerned with the library services.
- Analysis of the Table 11 on the frequency of the visit to the library shows that, 64 (27%) out of 237 respondents visited the library occasionally, followed by 41 (17%) who visited the library once in a week and 40 (16.8%) visited the library everyday. While delivering the mean value of all the NITs it further found that, the occasional visitor to the library stands at 8 followed by 5.125 once a week and 5 everyday. The Standard



Deviation stands highest at 2.948971 for Once a Week followed by 2.507133 for Thrice a Week and 1.927248 Everyday respectively.

- The purpose of the visit to the library placed in Table 12 depicts that, 171 (48%) out of 360 preferred to update knowledge followed by 59 (16%) for preparing lecture notes with and 38 (10%) for writing paper respectively.

Moreover, while evaluating the purpose of visiting the library among the different NITs, NIT Manipur 61 (17%) stands at the apex followed by NIT Silchar with 55(15%) and NIT Mizoram 51 (14%) respectively and thus, coming to 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> in the ranking order.

- The searching of preferred documents placed in Table 13 revealed that 194 (38%) out of 512 respondents preferred to search textbooks followed by 68(13%) who preferred to search reference books and 34(7%) newsletters respectively.

- Analysis by the preference of information sources placed in Table 14 found that, 155 (45%) out of 341 opined that they prefer to use printed source of information, 96 (28%) preferred to use online sources. Further the table found that, 49 (14%) preferred web sources while, 34 (10%) preferred to use audio/visual aids and 7 (2%) opted for CD-ROM. The result signifies to a healthy sign for the users who are getting inclined to use the electronic information sources other than print information sources. The calculation of correlation found that, there is a positive correlation between CD-ROM and Audio Visual Tapes that comes to 0.78724167, while Online source and Web as source it is 0.507602678, Web and CD-ROM 0.32143874 and Online and CD-ROM 0.071519854 but, between print sources and online sources and print source and web as source it comes to -.039409345 and -0.152324327 respectively and hence, they are negatively correlated.

- Analysis of the Table-15 revealed that, 180 (45%) users out of 397 favored e-books followed by e-journals by 113(28%) users and database by 40(10%) users respectively. It otherwise means that e-books are gaining momentum among the users of the NIT libraries under study. While deducing the correlation it could be found that, in between e-books and e-patents it comes to 0.20799718 while, between e-books and e-reports, it is 0.350907571, 0.744588954 between e-journals and database and 0.528693042 between

e-journals and e-patents. This depicts that, they are positively correlated. But while drawing the correlation between e-books and e-journals, it comes to -0.43263 and also between e-books and e-proceedings, it is -0.18446. The standard deviation is 8.25123.

➤ The analysis of Table-16 deduced that out of 285 respondents, 143 (50%) access e-resources on-campus which otherwise can be viewed that, the library of the institutes provide wi-fi within the campus. The second highest place is the library from where 56 (20%) followed by computercenter 47 (16%) as the third preferred place access e-resources. Further analysis revealed that, out of 143 users who access e-resources on-campus, NIT Nagaland constitutes the highest i.e, 24 (17%) followed by NIT Meghalaya 22(15%) and NIT Agartala 21(15%) respectively. Again, out of 56 respondents who access e-resources from the Library, NIT Manipur is the at the top as 15 (27%) out of 56 followed by NIT Sikkim 12(21%) and NIT Silchar 10(18%) respectively access e-resources.

➤ Analysis of the Table 17 revealed that e-books are the most preferred resources among the respondents compared to other electronic resources. The analysis found that, 186(14%) respondents out of 450 preferred to use e-books followed by 165(37%) respondents who preferred to use the e-journals and 36(8%) respondents favored to use Electronic Theses and Dissertations. However, the use of other electronic resources are equally are given importance by the respondents of all NIT libraries under study. Again, from among the NIT Libraries, NIT Library Manipur with 76 respondents are the highest number of respondents which comes to 17% followed by NIT Library Silchar where 75(17%) used the e-resources.

The statistical analysis placed in Table 17A visualized that the mean value for e-books comes to 23.25 followed by 20.625 for e-journals and 4.5 for ETD. The correlation between the various e-resources shows that e-journals and ETD have 0.907565 followed by 0.473879 for e-reports and ETD and 0.411921 for e-contents and e-reports. The correlation between the other e-resources has a positive correlation. Overall it can be said that the e-resources are positively correlated.

➤ Table-18 found that, out of the 237 respondents, NIT Silchar is found to have the highest rate i.e, 7 (23%) who use consortia based e-resources followed by 5 (19%) in NIT Arunachal Pradesh. The highest rate of negative view is from NIT Agartala and NIT

Meghalaya both having 23 i.e., 93% each. Therefore, the study revealed that adequate training need to be provided to the users so as to make them use of the consortium and to access various electronic journals subscribed by the library.

- Table 19 on analysis deduced that NIT Library Silchar provides the highest network services 13(24%) out of 54 which ranks the 1<sup>st</sup> followed by 11(20%) by NIT library Sikkim in the 2<sup>nd</sup> rank and 10(19%) by NIT library Arunachal Pradesh in the 3<sup>rd</sup> rank. While analysing the different network services it could be found that, internet service is being provided by all 7 NIT libraries which comes to 13% followed by 6 (11%) each for Online Database and email services. Further, Automated Cataloguing and Automated Circulation services are provided by 5(9%) each NIT libraries. Overall it can be said that, the all 7 NIT libraries in North East are making positive effort to provide network based services to the users.
- Table 20 on analysis found that out of 12 different international full text database IEEE is the most subscribed international database which constitute 7(18%) and stands at the top which is subscribed by all the NIT libraries. This is followed by the other demanding full text database i.e., Science Direct, Springer Link, ASME, ASCE which are being subscribed by NIT Silchar, NIT Sikkim, NIT Manipur, NIT Nagaland, NIT Arunachal Pradesh and NIT Meghalaya which comes to 6 each (15%). It could be further found that J-Gate is subscribed by NIT Silchar, NIT Mizoram and NIT Nagaland. Again, NIT Silchar from among the all 8 NITs in North East is subscribing to 10 international database followed by NIT Nagaland and NIT Meghalaya which are 6 each and NIT Manipur and NIT Mizoram 5 each. The overall analysis revealed that the NIT libraries are making efforts to subscribe the international database for the academic development of the institutes.
- With regard to difficulties while using library software it was found from the Table-21 that, out of 237 respondents 185 (78%) are comfortable while, 52 (22%) users viewed negative i.e, they are uncomfortable with the library software. Further analysis reveals that NIT Mizoram is top in the list to give negative views which means that the users face problems i.e, 15 (50%) followed by 8 (27%) in NIT Agartala and 7 (23%) each in NIT Silchar and NIT Meghalaya. However, 29(97%) in NIT Sikkim is the highest followed by

27(90%) NIT Nagaland and 25(83%) NIT Manipur who viewed that, they do not encounter with any problem.

- Relating to using the type of library software Table-22 visualised that, LIBSYS is the most used library software among the libraries under study where 3(three) libraries such as NIT Sikkim, NIT Arunachal Pradesh and NIT Silchar are using the software. SOUL is implemented by NIT Manipur and LIBMAN software by NIT Mizoram. NIT Nagaland is facilitated with user friendly campus management software which also manages and operates the library activities which is called ikollege software.
- Analysis with regard to the satisfaction of Library services library services placed in Table-23 shows that, 120 (51%) out of 237 respondents of all 8 NIT Libraries in North East Region covered under the study have opined library services as Moderate followed by 96 (40%) who opined as Good and 11 (5%) as Excellent. However, very few i.e, 10 (4%) of the respondents did not reveal their comments on their satisfaction about library services. The mean values with regard to library services shows 15 as moderate while, 12 as Good, and 1.375 as Excellent.

The analysis of the above tables reflects the overall scenario of NIT library services in North East India. It, however, could be found from the Table- 16: Access to e-resources, Table 17: Access to e-Soudh Sindhu and INDEST consortium, Table-18: Network services rendered by the libraries, Table-19: Full text databases available in the libraries that, the librarians in view of the proliferation of electronic resources coupled with the availability a wide gamut of electronic resources through open source, institutional blogs encounter with many difficulties in managing the resources and provide them to the users. They also face challenges while procuring the e-resources from the vendors directly over and above the consortia based resources who stipulate stringent conditions, licensing, and limitations for using the resources including periodical renewal.

## **5.20 Conclusion**

It could be concluded from the above analysis in respect to various components of all the 8 NIT libraries of North East Region that, the libraries are providing adequate services using the technologies but still, the libraries need to stand at the national level. Further, frequent orientations need to be provided to the user communities to make use of the library resources for

a sustainable development of research in the engineering fields. The present library system especially in NITs demands a dynamic change in order to provide adequate electronic resources including traditional resources for developing strength and achieving quality education which will facilitate the technocrats to contribute for sustainable economy development. The libraries still yet to venture new dimensions of services using technology. Further, competency and skill development need to be enhanced among the professionals for enabling the users to use more e-resources for teaching, learning and sustainable research among the technocrats which will contribute to develop knowledge based society.

## 6.1 Suggestions:

The suggestions and recommendations received from the respondents are considered as a constructive measure for the overall development of the library and its services to the users. The suggestions received by the users and the librarians of all the eight(8) NIT library are placed below for improvement and consideration for better service to the entire community of the respective institute and the engineering colleges in the region.

1. Space, being the genuine problem in the entire NIT library under study needs expansion for easy and comfortable sitting of the readers inside the library.
2. Infrastructures available in the respective library also add constraints among the users and hence, the users suggested to equip the library with adequate infrastructures for better use of the library resources inside the library. They also suggested for managing the resources of the library scientifically so as to access them comfortably and use.
3. The users further submitted their suggestions to develop ICT infrastructures to support the e-resources for better use by them.
4. The users felt the absence of full automation of the library functioning as handling of library activities manually consumes lot of time. Hence, full automation of the library is a dearth need in the respective NIT library which not only will help the users to get access to the resources but also better management of the resources.
5. Internet, the need of the hour not only facilitates the users for better and instant access of information from the library but also substantially contributes in developing a workaholic atmosphere for the staffs also.
6. The users, therefore, time and again are requesting the library authority to make available so that, they can access the electronic resources and use them.
7. The national and international databases subscribed by the individual library still do not bridge the information gap. Therefore, the users suggested taking measures for subscribing national and international databases which will meet their requirements.
8. Collection developments in the respective NIT library are not adequate and it was found from the study that user centric collection is very much in need. The users suggested for abundant collection of resources due to the prevailing of multidisciplinary subjects in the NIT.
9. Absence of a sound policy in the collection development has put constraints among the users due to non-availability of need-based resources. Hence, collection development

policy involving the students, faculties and experts needs to be initiated in the NIT library so as to develop user-centric collection.

10. The NIT library need to install the servers so that, bibliographic details of a documents including the electronic resources can be accessible.
11. In the event of prevailing of open source resources, the library needs to take initiatives of collecting the useful and research based resources so as to add potential information in the research. It is also required in view of the fact that, the NIT library does not subscribe to each of the periodicals required by the students, teachers and scholars.
12. Even if the library provides access to the resources and institutional repositories campus wide through intranet still lack in providing proper links and this has effected to the academic communities.
13. The library needs developing its own website and provide internal and external links to access the resources internally and also from the other websites.
14. There is a suggestion from the users to access the library round the clock and for this, the library should not confine to the traditional culture rather should change the mind-set to institute digital library.
15. The library needs to provide training programme in a frequent interval to the users so as to get abreast with the new technology to access resources and in this way, rate of usage statistics will enhance and proper value of the money can be realised.
16. As many of the users depend upon the library e-resources, the library's initiatives in procuring the authentic, reliable and user-based resources are imminent which will yield better research output in the institute.
17. The librarians' suggestions are also equally important as they directly come across with the users and understand their inconveniences. Hence, the librarians' suggestions concentrate more on providing adequate funds to support the need of the users.
18. Scanty budget allocation in the library has created hindrances in all round development and hence, adequate measures need to be initiated by the authority to provide funds for providing effective services.
19. Networking among the NIT libraries will enhance the use of resources and in the process, the students of the engineering colleges in the region will also take the advantage.
20. Campus network is essential so as to take the best use of the library and the users can get access to it round the clock. For this, a campus wide Wi-Fi facility is essential.
21. The users submitted a request to develop mechanism to access remotely both the library resources and also the open access e-journals and e-books etc.

22. E-learning facility along with supporting e-resources should be provided by the library within the campus in collaboration with the computer centres. Further,
23. Library needs to develop mechanism to provide online method to check the availability of the book and the number of books issued to the user's account.
24. The users further, requested to opening the library on holidays, public holidays.

## **6.2 Conclusion**

Library services amidst technology operations has become the demand among the users and libraries attached to the National Institute Technologies are no exception to it. Providing quality services is the call of the hour especially in special libraries attached to National Institute of Technologies. Globalization of information due to Internet coupled with increasing demand of resources for sustainable learning, teaching and research among the academic fraternity are the vital issues among the librarians to provide quality based user centric resources. This is more alarming in the technical institutes as the teaching, learning and research lead to production in industries which in turn form the basis of sustainable economic development of the state and national level as well. Davies (2002) stressed upon management and assessment of effectiveness of library resources that could be formed as a basis of quality measures as measurement and evaluation are integrated in libraries. As library is the knowledge domain, it substantially contributes with resources for a sustainable development of teaching, learning and research to recognize in national and international sphere.

Technical Education plays a crucial role in human resource development of the country by creating skilled manpower which opens up avenues for enhancing industrial products. The technical education covers various programmes in engineering, technology, management and architecture, town planning, pharmacy, applied arts and crafts, hotel management and catering technology. Technical education has gained importance in the development of the country due to the emerging and innovative development of science and technology. The main purpose of technical education within the country is to promote teaching, learning, and research in the field of science and technology. In order to achieve these goal academic libraries plays an important role and act as the main support to achieve its end. The study was undertaken to identify the current status of the NITs in the northeast region and the library services in each institute and design a model plan for the libraries and three major NITs within the country such as Surathkal, Kurukshetra, and Warangal are the exemplary library and their way of functioning to the users can well be implemented in NIT library of North East Region.



From in depth study of the organisational structure of the NITs in the North East , it could be pointed out that, there is a positive approach of the Government of India to expand the horizons of science and technology education and linkage education with the industries through NITs in various parts of North-East for a sustainable growth of economy in the states and also in the national level as well.. The creation and emergence of technical education arose out of the necessity for training, construction, and maintenance of the public building, roads, town planning, architectural work, applied arts and crafts etc. A healthy NIT library not only supports learning resources to its users only but also substantially contributes to the engineering colleges in the region. This could be visualised from the services provided by the model libraries as discussed above.

Even if, the central library of the respective NIT in North East Region caters to the needs of the technical institute through their services with the intention of promoting the technical manpower within the country, still needs radical improvements regarding collection developments, infrastructures, networking, automation, developing institutional repository, promoting the scholars for better outputs, support the entrepreneurs in providing need-based information. The libraries of the NITs in North East not only facilitate knowledge through various services to the users but also act a hub centre to promote regional diversity and multi-cultural understanding and creating and producing a maximum number of engineers and technocrats in the country. Library model which acts as a framework for undertaking different operations in the library in an efficient way by using the technology based services. It is an umbrella through which, apart from providing benefits to the users by the individual library, the other libraries can be connected through networking thereby extending the benefits to the users. Budget being a constant problem in the library system can be reduced and it can be properly used for a judicious selection of user centric resources which will yield value to the entire community in the society.

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## APPENDICES

### Questionnaire

On

#### LIBRARY AND INFORMATION SERVICES OF NATIONAL INSTITUTE OF TECHNOLOGY IN NORTH EAST REGION

Sir/Madam,

I am pursuing a PhD research on the above topic. I, therefore, request to kindly co-operate me by filling up the following questionnaire for the purpose. I express my gratitude for your co-operation for the same.

Thanking you,

Rohlupuii Pachuau  
Research Scholar  
Mizoram University

The respondent is requested to put (✓) mark in the space provided in each question or provide information wherever necessary.

#### A. GENERAL

1. Name of the Library: \_\_\_\_\_  
URL: \_\_\_\_\_

#### 2. LIBRARY STAFF

3. Professional \_\_\_\_\_ Semi Professional \_\_\_\_\_ Non Professional \_\_\_\_\_  
Temporary \_\_\_\_\_ Contractual \_\_\_\_\_  
Other than the above category \_\_\_\_\_

#### B. LIBRARY RESOURCES

4. Total collections/ resources of the Library: Till date 31<sup>st</sup> March 2015

Sl.No	Type	Total no. Till date
4.1	Books	
4.2	Journals	
4.3	Any Other	

#### C. READER'S SERVICE

5. Total working hours of the library?

a. Week days. \_\_\_\_\_ Hours (Time From \_\_\_\_\_ to \_\_\_\_\_)

b. Sundays. \_\_\_\_\_ Hours (Time From \_\_\_\_\_ to \_\_\_\_\_)

6. Does the library remain open during holidays and vacation? Yes    
If no, please state the reasons.

\_\_\_\_\_

\_\_\_\_\_

7. Does the library provide 24/7 service? Yes  No.

8. Do you provide Reference service to the readers Yes  No

If yes, please state the method of disseminating of services

a. Through document;

b. Through electronic form;

c. Through any other media (Please state)  \_\_\_\_\_

9. Do you provide Documentation Service? Yes  No

10. Do you provide any bibliographic/ Current Content Service? Yes  No

11. Which library software is in use?

• LYBSYS

• Maitrayee

• SLIM

• SOUL

• TLMS

Any other (Please specify) \_\_\_\_\_

12. Does your institute have a website? Yes  No

▪ If yes, who is hosting the your website \_\_\_\_\_

13. Has your library got an independent LAN or is a part of campus network?

Independent  Part of campus network

14. Consortium:

• INDEST

• CSIR

• UGC-Info E-journals

• Any other \_\_\_\_\_

15. State the full-text databases provided:

▪ Science Direct

▪ ACM Digital Library

▪ IEEE Online

▪ Springer link

▪ Proquest

▪ ASME

▪ ASCE

▪ Nature

- ASTM journals and Standards
- Standards (CD/intranet)
- Any other \_\_\_\_\_
- J-Gate
- JCCC

16. Bibliographic databases:

- Engineering village2   
(Compendex& INSPEC)
- Web of sciences
- Chemical Abstracts
- Any other \_\_\_\_\_

17. Does your library subscribe to any e-databases on its own budget apart from those paid by INDEST consortium?

- ASTM journals and standards
- Engineering village2   
(Compendex& INSPEC)
- Web of Science
- Any other \_\_\_\_\_

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18. What are all the Networked Services (NS) provided by your library?

Services

- |  |                          |                          |
|--|--------------------------|--------------------------|
| ▪ Electronic Data Interchange (EDI)                    | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Automated Cataloguing                                | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Automated Circulation                                | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Virtual Reference                                    | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ E-CAS  | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Online Databases                                     | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ CD-ROM/DVD   | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Electronic Thesis and Dissertations (ETD)            | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Multimedia Databases ( <i>audio and video etc.</i> ) | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Standards ( <i>CD-ROM or intranet version</i> )      | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Internet facilities                                  | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ E-mail   | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Video and Teleconferencing                           | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Facsimile transmission (Fax)                         | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Videotext or Teletext                                | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ E-learning   | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ E-publishing   | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Web-based document delivery                          | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Support  | <input type="checkbox"/> | <input type="checkbox"/> |
| ▪ Any other services _____                             |                          |                          |

19. If your library provides automated library catalogue services, please tick marks the type of service(s)?

- |                            |                          |
|----------------------------|--------------------------|
| ▪ OPAC                     | <input type="checkbox"/> |
| ▪ WebOPAC                  | <input type="checkbox"/> |
| ▪ Both                     | <input type="checkbox"/> |
| ▪ Any other services _____ |                          |

20. Does your library provides automated circulation services? Yes  No

21. If yes, please specify the daily transactions of books?

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23. State whether the library provide any virtual reference services. Yes  No

24. If yes, please specify the media used to deliver the services.

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25. Please state some of the best practices adopted/implemented by your library.

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26. Please provide the constraints faced and suggestions for improvement of library to render best services.

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Date:

Signature of the Librarian

## Questionnaire

on

### LIBRARY AND INFORMATION SERVICES OF NATIONAL INSTITUTE OF TECHNOLOGY IN NORTH EAST REGION

Sir/Madam,

I am pursuing a research study on the above topic. I, therefore, request to kindly co-operate me by filling up the following questionnaire for the purpose. I express my gratitude for generous efforts.

Thanking you,

**Rohlupuii Pachuau**  
Research Scholar  
Mizoram University

The respondent is requested to put (✓) mark in the space provided in each question or provide information wherever necessary.

1. Name of the Respondent: \_\_\_\_\_  
With address, e-mail etc: \_\_\_\_\_
2. Name of the Department \_\_\_\_\_
3. Category to which you belong:  
(a) Student  (b) Faculty Member   
(c) Research Scholar  (d) Others (Please specify)
4. Area of Specialization/Interest: \_\_\_\_\_
5. Sex Male  Female
6. Do you visit the Library? Yes  No   
If yes, how often? Once a week  twice a week   
thrice a week  ryday   
Weekly  Occasionally
7. Does the library display new arrival of documents?  
Yes  No
8. Mention the type of access system you prefer to use in the library.  
Open system  Close system  Internet  Intranet
9. Purpose of visiting the Library:

- Writing an article paper  Writing a book  Preparing a lecture note   
 Update knowledge  Starting a project  Browse internet   
 Others (please specify)  \_\_\_\_\_
10. Type of information you need: Current  Retrospective   
 Others (Please specify)  \_\_\_\_\_
11. Do you have a Department Library? Yes  No
12. Do you access the Central Library from the Department? Yes  No
13. Type of document you prefer to search:  
 Textbook  Periodicals  Reference  Conference-Seminar proceedings   
 Patents  Standards  Reviews  Newsletters  Index   
 Abstracts  Bibliographies  Micrographics  Theses/Dissertation   
 Res. Reports  Any other  (Please Specify) \_\_\_\_\_
14. Which information sources do you prefer to use?  
 Printed  Online  Web   
 CD-ROM  Audio-Video Tapes  Others   
 (Please specify) \_\_\_\_\_
15. Do you have access to internet? Yes  No   
 If yes, state the purpose of accessing the internet:  
 e-Book  e-Journals  e-Patents  e-Reports   
 e-Proceedings  Databases  any other   
 (Please specify) \_\_\_\_\_
16. Are you satisfied with the library services? Yes  No   
 If no, please specify the reason \_\_\_\_\_  
 If yes, pl. rate your satisfaction. Excellent  Good   
 Moderate  No comment
17. Which e-resources you like most to use?  
 CD-ROM  DVDs  Floppy Diskettes   
 E-journals  Bulletin Boards  E-books

Others (Please specify) \_\_\_\_\_

18. Are you using the UGC Infonet Digital Library Consortium and INDEST Consortium?  
Yes  No

19. Which place you used or prefer to use to access e-resources?  
Library  Computer Center  Department Laboratory   
On Campus Location  Off Campus Location

20. Is the library providing the required e-information? Yes  No

21. Do you find any difficulty in locating your required information/documents?  
Yes  No

If yes, please state the reason.

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22. Is the library automated? Yes  No   
The level of library automation: Fully  Partially  On the process

23. Do you find any difficulty in using the library software? Yes  No   
If yes, please state the reason \_\_\_\_\_

24. Do you use to seek the help of any library staff in locating your required information or using a particular service? Yes  No

25. Does your library provide access to electronic form of information?  
Yes  No

If yes, please tick mark what type of e-resources are available in the library from the following:

- |                         |                          |          |                          |
|-------------------------|--------------------------|----------|--------------------------|
| • e-journal             | <input type="checkbox"/> | e-book   | <input type="checkbox"/> |
| • e-content             | <input type="checkbox"/> | e-report | <input type="checkbox"/> |
| • e-thesis/dissertation | <input type="checkbox"/> | others   | <input type="checkbox"/> |

27. Any other information you would like to contribute:

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28. Any suggestion you would like to share for development of the library:

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Signature & Date